Volume 89 Number 19

STEEL

For forty-eight years—IRON TRADE REVIEW

PRODUCTION ◆ PROCESSING ◆ DISTRIBUTION ◆ USE

The Week In Steel

FOR the privilege of making 4,000,000 tons of steel in the third quarter, thereby consuming irreplacable ore and coal and further deteriorating their equipment, producers representing 77 per cent of the industry paid $5,300,000. Such were the losses incurred on an average operation of 31 per cent, compared with an aggregate net profit of $29,900,000 by the same interests on a 54 per cent rate a year ago. For the fourth quarter an equally discordant symphony in red is being composed; first savings from the 10 per cent reduction in wages will be reflected, but October's 27 per cent gait and December's year-end inertia seem certain to neutralize whatever improvement November brings (pages 26-27).

I. C. C. Solves Traffic Dept. Unemployment

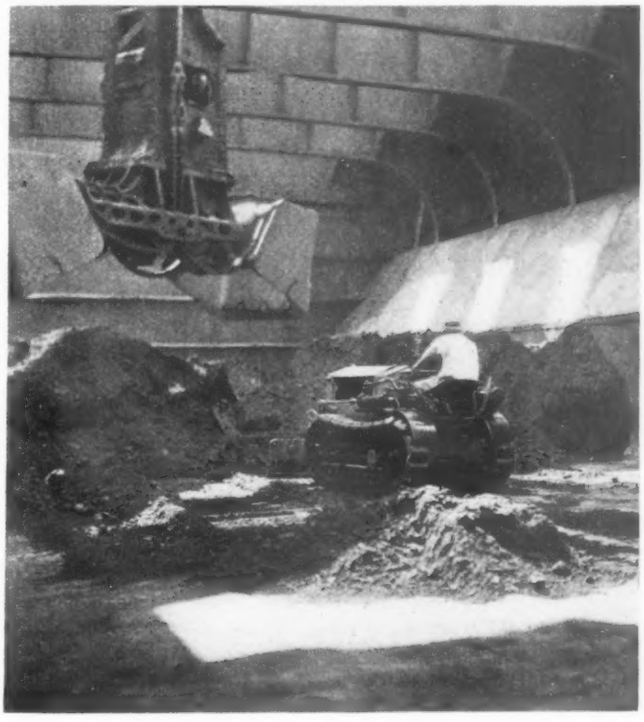
Nor has the interstate commerce commission's irresolution concerning freight rates been any mitigating influence. Scarcely has the commission ordered advances on raw materials and finished products of the steel industry, assessing it $16,000,000 of the $100,000,000 to be raised annually for the railroads, before it decrees lower short haul rates as of Nov. 10. Meanwhile, the railroads are preparing tariffs covering through rates from eastern to western trunk line territory effective Dec. 3. Probably 35,000 individual steel freight rates are in process of revision, and for traffic departments at least the depression is over (page 25).

Steel Demand Backing Up Sentiment

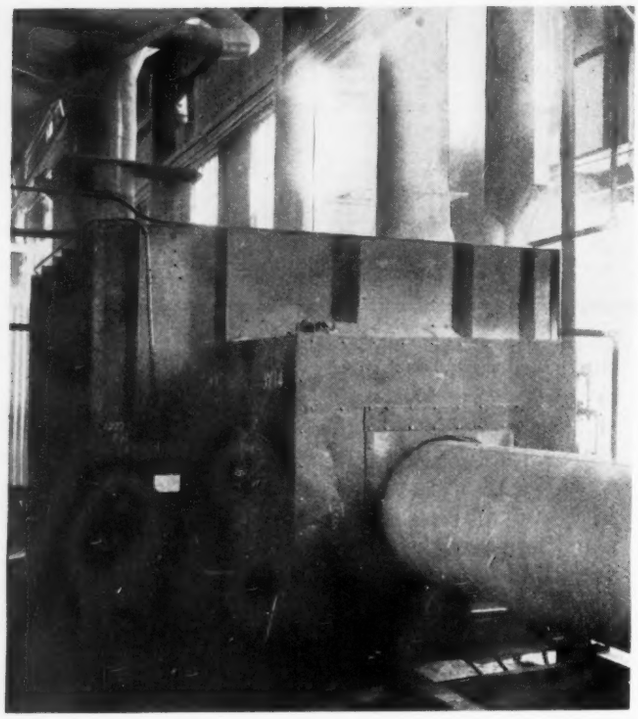
Thus far the various rate decisions have neither released railroad steel requirements supposed to be in reserve nor driven consumers to cover. Nevertheless, the steel markets continue to regain confidence, supported by more tangible buying, (page 65). . . . Concurring in this appraisal is James A. Farrell, Steel corporation president, who has backed his opinion with noteworthy improvements to his steelworks at Donora, Pa.. (page 39). Mr. Farrell, however, is skeptical of the value of economic storm warnings (page 28).

Ford Cuts Cost $23 a Car, Tightening Race

While pipe mills are figuring on a 25,000-ton project (page 75) and the railroads are slowly beginning to cover their 1932 track material (page 69), the needs of the automobile industry bulk largest. Beginning Nov. 15 the volume of steel moving to Detroit will expand substantially. Chevrolet, Ford, Chrysler are shap-



Few mechanical beasts of burden are as versatile as tractors. Lowered into the hold of a Great Lakes freighter, a Model 20 Cletrac, made by the Cleveland Tractor Co., bulldozes iron ore into the 17-ton maw of a Hulett bucket



Only a shiny, clean surface will take the coating so necessary to prevent rust on pipe underground, so the W. W. Sly Mfg. Co., Cleveland, devised for the Western Pipe & Steel Co., Los Angeles, the above cabinet, cleaning 76 miles of 26-inch pipe in 76 days at the rate of one mile a day

ing up programs to carry them through January at an encouraging rate. By withdrawing his $1 per day depression wage advance Ford lowers his cost $23 a car, on the basis of his production since paying the $7 scale, a further complication in the already super-competitive low-price field (page 33).

Fabricators May Name Satraps

Trade associations, declares a government official (page 28), must assume greater leadership of their industries, but the American Institute of Steel Construction requires no such prod. At an enthusiastic convention last week it considered a stabilization plan whereby it would divide the country into districts, organize local associations tributary to the parent body, set quotas for member fabricating shops and cure the ills of over-capacity (page 23). . . . Fourteen million tons is a conservative estimate of new markets possible to fabricators if they push steel floors, road guards, houses, piling, dams, curbing and farm buildings (page 24).

When Haying Was a Stabilizer

Henry Ford's dream of linking industry with agriculture, shunting men from factory to farm as the seasons progress, is merely a revival of the oldtime machine tool industry's formula in New England. Low water in the race and low order books usually coincided with haying time, and shutdowns were a mutual boon. Manufacture of firearms and machine tools in the same plant also assisted stabilization—a word not new to New England (page 59). . . . Demand for machine tools, while light, is showing isolated gains. A navy inquiry for lathes has survived the budget-pruning process at Washington. Automobile manufacturers still have considerable retoolng for 1932 models ahead of them. Some districts are concluding their Russian contracts and are hoping for more (page 96).

Quality Survives Even Depression

Despite high first cost, 18 per cent chrome steel is winning a broader market in bridges and similar heavy structures. For high temperature work 26-30 per cent chrome steel has its partisans because of its marked resistance to oxidation and scale. Still greater advantages are claimed for chrome-nickel alloy steels (page 45). . . . Into the George Washington bridge at New York, world's largest suspension structure formally opened Oct. 24, went more than 59,000 tons of structurals, 40,212 tons alone for the two 600-foot towers supporting cables. One measure of the magnitude of the erection job is the total of 1,262,500 rivets, driven at the rate of 5000 a day (page 50).

Removing Rivets Hard as Driving Them

Occasionally the removal of rivets without damaging the surrounding platework is as difficult as the original driving. Cutting a slot in the head of the condemned rivet, then using an oxyacetylene torch dexterously, is one way (page 54). . . . Field riveting was the final step in assembling heavy gold mining equipment in New Guinea when a 2-mile high mountain range made transportation by airplane advisable. Forgings and castings for the dredge were held down to 8 tons to facilitate the 32-mile air journey (page 42). . . . No airplane could lift the 50,000-pound ingots to transfer which from soaking pit to blooming mill an unusually large delivery car was designed (page 46).

Galvanized Steel Does Weld

Welding of galvanized steel is always difficult, sometimes imperative. One manufacturer of underground acetylene generators turned to bronze welding with surprising success. Using a new type welding rod, high-strength sound welds were obtained with only slight damage to the galvanizing, which was overcome by retinning and coating with asphalt paint (page 42).

Steel Constructors To Block Evils of Over-Capacity

A DRAMATIC demonstration of effectiveness in co-operative effort in industry was staged at the ninth annual meeting of the American Institute of Steel Construction at White Sulphur Springs, W. Va., Oct. 27-30. The convention opened under a cloud of doubt; it adjourned in an atmosphere of confidence and renewed courage.

The victory was due first to the fact that responsible heads of most of the important companies were present, the percentage of the country's fabricating capacity represented by chief executive officers being much greater than in any previous meeting. Never before had vital problems of the industry been reviewed in convention under such authoritative auspices.

The second factor was the moral building influence of a proposed plan for correcting certain evils resulting from over-capacity. In its chief essentials, the plan provides for:

1. Dividing the country into logical districts (or areas) and organizing a local association in each.

2. Appointing a director of trade relations who shall work under the direction of the A.I.S.C.

3. Ascertaining the total rated capacity in tons of each district (sum of capacities of shops in district)

4. At end of each month determining the operating percentage for each district (rated capacity divided by tonnage booked for fabrication in that month).

5. Compiling this data and issuing a bulletin by the director of trade relations to show operating rates at which the country, each district—and perhaps each shop—will operate for coming months.

Proper Share to Each

The principle on which the plan is based is that every member is entitled to his proper share of the business available. If the operating rate for the country at the end of the year is 60 per cent, a shop having a rated capacity of 10,000 tons per year would have been entitled to have contracted and fabricated 6000 tons during that year. "If it had fabricated in excess of this tonnage the dues which it pays to the institute for the development of the industry should properly be increased." Present dues would not be affected.

For tonnage a member has sold in excess of his current quota he shall pay to the A.I.S.C. additional dues as follows: For the first 5 per cent in excess of quota $2 per ton; for the second 5 per cent $3 per ton; and so on, paying an additional $1 per ton for each additional 5 per cent or part thereof.

The plan provides that in case it is suspected an inaccurate report has been submitted, the executive committee of the A.I.S.C. may demand evidence or may order an audit of the member's books. In case it is found the member has submitted improper information "he shall pay such additional dues as the committee shall direct but not in excess of $5 per ton on the difference between the amount reported and the correct amount."

Must Maintain Deposit

Each member shall keep on deposit with the A.I.S.C. 25 cents per ton of his assumed annual capacity from which the treasurer will deduct dues. Provision is made for increasing this deposit whenever the prospective charges against a member amount to 25 per cent of his deposited funds. The sums deposited shall be placed in savings banks or in investments legal for savings banks. "The funds shall remain at the command of the executive committee as long as the fabricator remains a member . . . and the investments, if any, liquidated to pay charges against the member. The interest earned . . . shall accrue to the member provided all charges are fully paid. A bond, in lieu of cash, will not be accepted."

Members can withdraw only at the end of a yearly period. Notification of intent to withdraw shall be made at least two months before the end of the yearly period and all reports required shall be submitted. These proving satisfactory, the executive committee shall accept the resignation and return the member's deposit, less charges due.

Legality Is Questioned

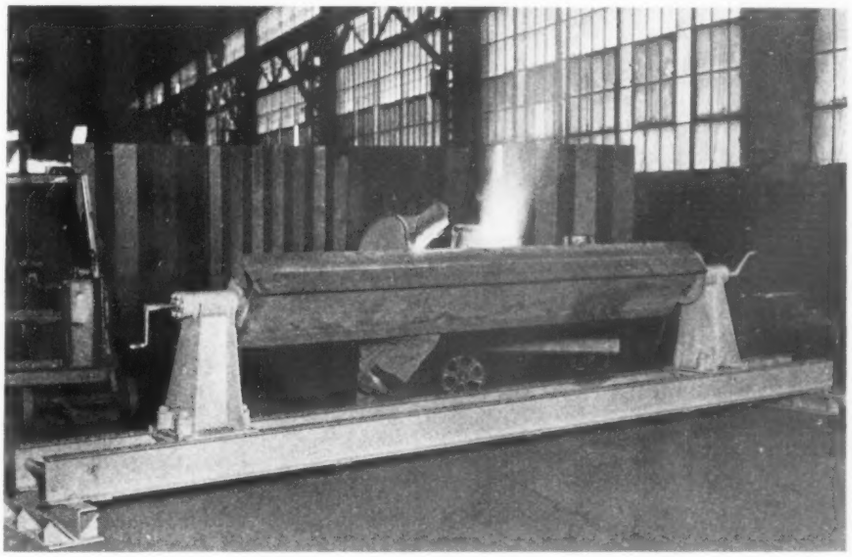
While discussion of the plan from the floor of the convention was limited, it proved to be the dominant theme for corridor debate. Conditional approval was voiced in the following resolution, introduced by W. M. Wood, Mississippi Valley Structural Steel Co. and adopted unanimously:

"Resolved that this convention endorse this plan in principle and authorize the board of directors to investigate first, as to its legality and second, as to its practicability. If in its judgment the plan or some modification of it seems workable and feasible then steps should be taken to put it into effect immediately."

The groundwork for the plan was laid in discussions extending from several days before the convention opened up to Wednesday morning when the subject "What Steps Can Be Taken Within the Industry To Improve Conditions?" was introduced by H. A. Fitch, Kansas City Structural Steel Co. He outlined the situation in detail, dwelling particularly on the point that mere tonnage is not the answer to the problem.

He was followed by Karl E. Vogel, Omaha Steel Works, who spoke on "The Functions and Value of Local Associations." He outlined the advantages of reports on district capacities and operating rates, which feature is covered in the plan. T. W. Dodd, St. Joseph Structural Steel Co., E. W. Kreuger, Worden-Allen Co. and A. J. Dyer, Nashville Bridge Co. also emphasized the value of locals.

"Relation To General Contrac-



NEW EQUIPMENT IS BEING CREATED FOR WELDERIES: A simple apparatus permitting easy rotation of material being fabricated, developed by the Pawling & Harnischfeger Co., Milwaukee

tors" was discussed by H. B. Hirsch and J. G. Shryock of Belmont Iron Works and also was covered in a paper by L. D. Rights, Shoemaker Bridge Co. They presented a strong indictment against the tactics of certain general contractors.

Using the 1931 edition of the standard contract adopted by the Structural Steel Board of Trade Inc., Robert C. Post, Post & McCord Inc. explained the importance of each of its provisions and urged fabricators to "refuse to let the buyer dictate the conditions of contracts and to resolve that the industry will eliminate its worst evil—competition in terms."

Insufficient for Needs

R. T. Brooks, George A. Just Co., New York, discussed the institute's code of trade practice, stating he does not favor its continuance because it is "insufficient for our needs." In view of the present attitude on federal legislation affecting business, he counseled "an attitude of watchful waiting" and alertness to seize an opportunity "to place the power of this business squarely behind the best solution that may be offered."

Clyde MacCormack, Phoenix Bridge Co. presented a convincing plea for reliable statistics in the industry on the ground that they are essential to intelligent planning. The present data provided by the department of commerce, the census bureau and the business papers do not go far enough, in his opinion, to afford the basis for planning.

The convention adopted a resolution favoring "any modification of the existing antitrust laws as will permit agreements in industry tending to limit overproduction in any line of endeavor."

R. I. Ingalls, Ingalls Iron Works Co., Birmingham, Ala., emphasized the importance of intelligent cost accounting to profitable operation. Federal income taxes, he maintains, should be included in the cost of doing business and not be borne by capital. He also advocated charging the expense of errors to employes who commit them, assessment of indirect labor costs to overhead, inclusion of the cost of estimating in the cost of the job and the estimating of the cost of delayed payments.

In his third consecutive annual address as president of the institute, Charles N. Fitts, New England Structural Co., Boston, viewed the prospects in the industry in terms of tempered optimism.

"Tales of losses in the steel construction industry are not new," he said. "Yet I notice that leaders continue to expand their plants and invest more capital.

"In this year of depression we have sufficient evidence to prove ours is a valuable industry in which to invest. The Bethlehem Steel Corp. is reputed to have paid $32,000,000 for one of the larger independents and more than $4,000,000 for two smaller plants. That would indicate that a part of the industry at least is nowhere near bankruptcy. Our profits may be in hiding but I for one am disinclined to believe that our investments have been jeopardized."

Disregard the Present

Charles F. Abbott, executive director, in discussing the industry urged that "we should keep uppermost in our minds the possibilities and not become confused by what may be the conditions today." He said further:

We must not forget that the last three years have made men selfish, suspicious and tricky. The next three years will make men generous, faithful and dependable. Just as we have ups and downs in business so do we have cycles of business character.

It is under such conditions that business relations will become normal, free from the nervous tensions of the past. It is then that some judgments and honest understandings will promote better business conditions.

If every man would agree to use his cost, add a profit, our troubles would disappear over-night. No one complains about the tonnage that has been available this year. This proves that the depression is not a sufficient excuse for unsatisfactory prices and profits.

A way out:

1. One price to all on plain material.
2. Selling price based on cost plus a profit.
3. No dumping.
4. Code of standard practice.
5. Code of trade practice.
6. Standard contract.
7. Output related to demand.
8. Development of new uses.
9. Better co-operation.

The great need at this time is the preservation of the identity of the trade organization movement. The industry without a trade association or with one inadequately equipped to cope with the new conditions will be seriously handicapped when it comes to protecting its own interests.

An alluring picture of new markets for rolled steel was painted by several speakers at the Tuesday afternoon session. Lee H. Miller, whose report as chief engineer is presented in greater detail on page 44 of this issue, outlined possibilities in seven markets which will involve about 14,000,000 tons of steel annually:

1. Steel floors.
2. Road guards of structural steel.
3. Steel frames and floors for residences.
4. Sheet steel piling.
5. Steel for dams.
6. Farm buildings.
7. Street curbing.

A type of floor construction differing somewhat from the now well-known "battledeck" form was described by J. G. Shryock, chief engineer, Belmont Iron Works, Philadelphia. Known as the "Belmont rolled structural steel interlocking floor," it consists of overlapping channels—one with the web down, the next with the web up, etc. The flanges may be bolted, riveted or welded.

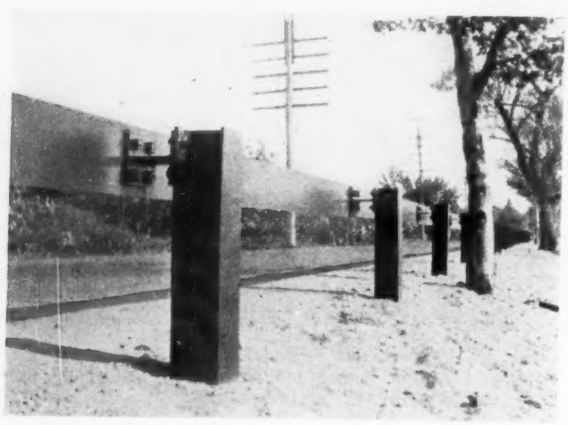
Erection Cost Reduced

Mr. Shryock stated that in an office building requiring about 1000 tons for the frame, at least 500 tons additional would be required for floors of this interlocking type and that by this construction the cost of steel erected per ton would be reduced instead of increased. He described elaborate tests indicating remarkable stiffness in this type of floor.

Two diametrically opposed ideas in steel frame house construction were presented. F. J. Foster, National Bridge Works, New York, described a type of construction involving practically no fitting in the field, the bulk of the work being done in the shop. He said:

The walls and roof may have an exterior of sheet steel inside of which will be a steel reinforcement for insulation. The framework is of steel placed so that it will give the greatest service per pound of steel. Every

(*Concluded on Page* 44)



Armored road guard erected near Concord, Mass. The potential market for steel for this purpose is estimated at 1,500,000 *tons annually*

Rate Rise To Cost Steel 16 Millions; Tariffs Badly Upset

WASHINGTON — Steel producers and consumers will contribute between $16,000,000 and $17,000,000 of the $100,000,000 which it is estimated, will be added to the railroad's revenue by reason of advances in freight rates granted by the interstate commerce commission in the 15 per cent rate case.

On the basis of tonnage hauled in the fiscal year ended last June 30, the $3 per car increase on iron ore (still assuming that this increase will be assessed only once) will cost the industry $2,519,217. The $6 per car surcharge on pig iron will amount to $438,828, and on iron and steel scrap $1,126,188.

On the basis of the 2c per 100-pound advance, the annual increase on rails will be $514,476, cast iron pipe $533,263, iron and steel pipe $1,723,849, iron and steel sixth class $1,099,551, iron and steel fifth class including tin and terne plate $8,362,514, nails and wire $459,830.

Not included in the above estimates is the $1,000,000 annual increase on less-carload shipments.

Loans to Weaker Roads

It is believed that the commerce commission is in a receptive mood to the suggestion of railroad executives that the increased revenue collected by the stronger roads and given to the weaker roads be classified as a loan rather than a gift.

The special committee of railway executives named to confer with the commission met here 3 days last week preparatory to working out pooling provisions. The committee will report first to the Association of Railway Executives.

Further complications in the rate structure are precipitated by the decision of the commerce commission granting the railroads permission to establish lower tariffs for hauls under 100 miles. These rates are to become effective Nov. 10. The base rate under the new scale for hauls of 5 miles and less, is 3c per 100 pounds, or just half the current rate. The maximum rate allowed for a 100 mile haul is 16c.

These new short haul rates will take effect Nov. 10 and the increases permissible under the 15 per cent decision, probably will take effect some time in December and thus be in the nature of a surcharge.

Complications may arise from the dissenting attitude of certain state commissions. For example, some of the 15 per cent case rates will conflict with the Pennsylvania long and short haul requirements. The short haul rates will not become effective in Indiana and Illinois, Nov. 10.

Another development is the proposal of the railroads to cancel existing less-carload rates on iron and steel products in eastern and New England territories. Hearings with shippers will be held in New York, Nov. 5, and in Chicago, Nov. 10.

A traffic manager of one steel company, which has more than 50,000 rates on file, estimates that fully two-thirds will be revised by the pending adjustments, and the solution of the unemployment problem in traffic departments appears at hand.

Wholly apart from the 15 per cent case rates and the new short haul rates are the new scales, announced early in the year, to go into effect, Dec. 3.

The principal feature of these changes is the establishment of through rates from points in Central Freight association, Eastern Trunk line and New England territories to points in the Western Trunk line territories, which comprise Iowa, Kansas, Missouri, Nebraska, North Dakota, South Dakota, Minnesota, and a section of Colorado and Wyoming, on a line with and east of Denver and Cheyenne, and the upper peninsula of Michigan, (Docket 17,000. Part 2.)

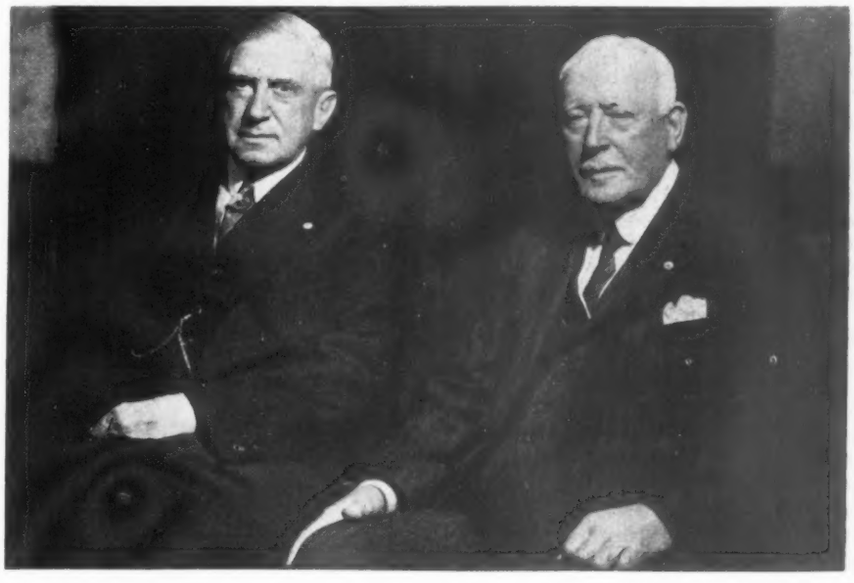
Heretofore, through rates into this territory have not been general. The proposed changes will apply to all classes and to certain commodity rates, with iron and steel articles at 32½ per cent of first class and the agricultural list at 40 per cent. Incidentally, billets will take Class D, no commodity rates being prescribed.

Chicago Still Critical of I.C.C. Rate Decision

Chicago—More mature study of the surcharge-pooling freight rate plan of the interstate commerce commission by raw materials and steelworks traffic men tends to stir increasing apprehension as to possible damage to the freight rate structure, if the railroads accept the proposals. The burden that thus would afflict the steel and raw materials industries is emphasized.

Acceptance of the freight rate plan by the railroad, it is stated, would develop a chaotic condition in short haul class rates. This, according to local traffic men, would be decidedly disadvantageous at this time, when more stability for rates is sought as an aid in the general revival of activity.

Steel scrap interests have been somewhat disturbed over the possibility of the suggested rates going into effect. While the sentimental effect of lessened shipments of scrap from outlying collection points might be advantageous at present, it is felt that in the long run scrap supplies that ordinarily might be trapped by this market would become isolated.



Kaiden-Keystone Photo

VETERANS, BUT STILL ON THE FIGHTING FRONT: Charles M. Schwab, chairman, Bethlehem Steel Corp., and James A. Farrell, president, United States Steel Corp., have much in common these days, with all executives of the steel industry, and that is in planning—planning how to wrest back prosperity's flag from the forces of depression

Operating Losses of Nine Steel Producers $5,332,739

NINE leading producers of steel, representing 49,500,000 tons of ingot capacity or 77 per cent of the entire steel industry, incurred an aggregate operating loss of $5,332,739 in the third quarter.

If payments of dividends out of surplus be included, then the net loss in the quarter was over $24,000,000. By contrast, the identical nine producers in the third quarter of 1930 reported an operating profit of $29,908,076.

Considering the first three quarters of 1931, profits in the earlier months have now been almost wiped out, and for this period the aggregate net operating profit of these producers is only $2,690,004.

Of the nine interests reporting thus far—including United States Steel, Bethlehem, Republic, Jones & Laughlin, Sheet & Tube, Inland, Colorado Fuel & Iron, Wheeling and Gulf States—only United States Steel and Inland show an actual operating profit for the third quarter.

In 1930, the steel industry as a whole earned 4.54 per cent upon its capitalization.

U.S. Steel Earnings Are Record Low

NOT since the formation of the United States Steel Corp. in 1901 have its earnings fallen so low as in the quarter ended Sept. 30. After ordinary expenses and federal taxes, but before depreciation, depletion and obsolescence, earnings in the third quarter totaled $9,181,091. The previous low was $13,445,231 in the first quarter of 1904.

In 1904 the rated capacity of all steel producers was 24,963,700 gross tons of open-hearth and bessemer ingots. Today, the country's capacity is 66,069,570 tons, with that of the Corporation more than the entire country's facilities in 1904.

For the third quarter of 1931, after depletion, depreciation and obsolescence of $11,792,834, the deficit was **$2,611,743. Interest of $1,362,092** increased this loss to $3,973,835.

Adding special income of $7,160,960, profit arising from the sale of fixed property, net income for the quarter stood at $3,187,131, equal to 88 cents per share on the preferred stock. However, dividends are maintained on the basis of $7 annually on the preferred and $4 on the common. To meet this dividend requirement, $11,822,371 comes from surplus.

Monthly earnings have shown a successive decline since March, falling below $4,000,000 in June and touching $2,559,047 in September. In general, third quarter earnings were 33 per cent below the second quarter.

According to the *Chicago Journal of Commerce*, the Corporation may show a net in the fourth quarter of about 50 cents a common share. This appraisal presumes the same operating rate as third quarter but takes into consideration reduction in costs by wage and salary cuts and an additional item of special income equal to that of the last two quarters. Savings in pay roll costs have been variously estimated at from $6,500,000 to $8,700,000.

J & L Shows Deficit

Jones & Laughlin Steel Corp., Pittsburgh, reports for the third quarter after all charges including taxes, depreciation, depletion and bond interest, a deficit of $934,352. This compares with net income of $391,823 in the preceding quarter and net income of $1,850,837 in the third quarter of 1930. The deficit for the first nine months of 1931 was $733,511, compared with net income of $8,809,533 in the corresponding 1930 period. After dividends a deficit of $4,680,471 remained, compared with surplus of $3,565,853 a year ago. Payment of the common dividend was omitted at the last quarter but the regular $1.75 dividend on the preferred stock has been declared payable Jan. 1 to record Dec. 11.

Republic Cash Greater

Republic Steel Corp., Youngstown, O., reports loss of $2,728,077 in the third quarter, compared with $1,017,305 in the second quarter. Nine months to date brings loss to $5,512,975, but of which $5,780,220 has been depreciation of plants and exhaustion of minerals. In 1921 combined losses of the constituent companies of Republic Steel Corp. were $14,417,429. Comparing the balance sheet of Sept. 30, 1931, with that of Dec. 31, 1930, cash has been increased $844,338, notes payable reduced $820,000, accounts payable reduced $2,613,042, and funded debt reduced $1,996,300.

Inland Nets 7 Cents

Inland Steel Co., Chicago, reports income of $90,166 In the third quarter, equal to 7 cents a common share, against earnings of $772,757, or 64 cents a share, in the second quarter. For nine months of 1931 earnings are $1,496,796, or $1.24 a common share. Directors have declared a

Steel Corporation's Quarterly Report Summarized

	Third quarter 1931	Second quarter 1931	Third quarter 1930
Total earnings	$9,181,091	$13,817,524	$37,995,299
Less depreciation, depletion, etc.	11,792,834	12,211,569	14,813,916
Net income	†2,611,743	1,605,955	23,182,283
Less bond interest	1,362,092	1,375,566	1,399,978
Balance	†3,972,835	230,389	21,782,305
Add special income*	7,160,966	7,160,966	2,412,857
Total	3,187,131	7,391,355	24,195,162
Dividends			
Preferred	6,304,919	6,304,919	6,304,919
Common	8,704,583	8,704,292	15,185,293
Surplus	†11,822,371	†7,617,856	2,704,950

*Quarterly apportionment of net interest on Federal tax refunds.
†Decit.

quarterly of 50 cents a share to record Nov. 13, thus placing the issue on a $2 annual basis, against $2.50 formerly.

Sheet & Tube Shows Loss

Youngstown Sheet & Tube Co., Youngstown, O., reports net loss of $1,504,892, compared with a net loss of $1,176,444 in the second quarter and a net profit of $1,708,979 in the third quarter, 1930. Loss for nine months of 1931 is $3,545,071. In the third quarter, 1931, the company reported $754,542 net earnings from operations after all expenses and charges for plant repairs. Other income was $408,487 additional. Interest charges of $1,120,205 and depreciation of $1,547,717 resulted in a net loss.

Wheeling Reverses Profit

Wheeling Steel Corp., Wheeling, W. Va., reports for the quarter ended Sept. 30 net loss of $718,927, after depreciation, interest, against profit of $304,374 in the corresponding quarter of 1930. For the nine months ended Sept. 30 the company reports net loss of $1,935,755, against a net profit of $2,655,955 in the first nine months of 1930.

Bethlehem In Loss, Votes Dividends

BETHLEHEM STEEL CO., Bethlehem, Pa., though incurring an operating deficit of $1,502,002, declared its regular quarterly dividend on the preferred and continued with its $2 annual rate on the common, which will be paid Feb. 15, to record Jan. 18.

Thereby, the operating deficit was turned into a net deficit of $4,852,002. Total income was $3,954,960 for the quarter; for the second quarter it was $6,394,057; and for third quarter, 1930, $8,943,217.

Bethlehem's value of orders on hand Sept. 30 was $48,262,342, compared with $57,334,794 at the end of the previous quarter. Operations averaged 32 per cent of capacity during the third quarter, 41.5 per cent in the second quarter.

Eugene G. Grace, president, commented: "We think that in the last week we have noticed better activity on the part of the public. Prices are being maintained very well. Sentiment has unquestionably improved."

Bethlehem's Financial Statements Compared

	Third Quarter, 1931	Second Quarter, 1931	Third Quarter, 1930
Total income	$3,954,960	$6,394,057	$8,943,217
Less interest	1,930,181	1,811,039	1,636,267
Balance	2,024,779	4,583,018	7,306,950
Less depreciation	3,526,781	3,130,275	3,523,525
Net income	*1,502,002	1,452,743	3,783,425
Preferred div.	1,750,000	1,750,000	1,750,000
Common div.	1,600,000	1,600,000	4,800,000
Total	3,350,000	3,350,000	6,550,000
Surplus for period	*4,852,002	*1,897,257	*2,766,575

*Deficit.

□ □ □

Canada Wire & Cable Co. Ltd., Toronto, Ont., has declared a 25-cent dividend on the class B common, payable Dec. 13.

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Western Steel Products Ltd., Winnipeg, Man., has deferred action on the preferred dividend falling due Nov. 1.

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Virginia Iron, Coal & Coke Co., Roanoke, Va., reports net loss for the third quarter of $7763, compared with net profit of $26,828 in the second quarter. Net profit for nine months of 1931 is $85,317.

Link-Belt Co., Chicago, reports for the nine months ended Sept. 30 net profit of $618,522, after depreciation, federal taxes, against $1,802,111 in the first nine months of 1930. For the third quarter net was $166,540, against $495,912 in the third quarter of 1930.

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Colorado Fuel & Iron Co., Pueblo, Colo., reports deficit for third quarter of $949,251, before deduction for retired equipment and federal income tax. This compares with a like deficit of $774,793 for the same period, 1930. For the nine months ending Sept. 30, 1931, deficit is $1,585,527.

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Gulf States Steel Co., Birmingham, Ala., reports net loss of $262,535 for third quarter, after interest, depreciation, taxes and other charges. This compares with net loss of $303,643 in the second quarter and loss of $197,751 in the third quarter of 1930. For nine months of 1931 net loss is $783,219 compared with loss of $201,288 in the comparable 1930 period.

Monthly Earnings of United States Steel Corp.

	1931	1930	1929
January	$6,118,411	$15,404,359	$18,759,098
February	6,155,548	16,107,410	19,080,941
March	7,190,877	18,103,628	22,265,342
First quarter	19,464,836	49,615,397	60,105,381
April	5,135,499	16,113,583	22,361,428
May	4,182,732	16,570,790	25,604,641
June	4,499,293	14,376,931	24,029,392
Second quarter	13,817,524	47,061,304	71,995,461
First Half	33,282,360	96,676,701	132,100,842
July	3,661,751	13,479,870	24,303,058
August	2,960,293	13,000,496	24,687,088
September	2,559,047	11,514,933	21,183,566
Third quarter	9,181,091	37,995,299	70,173,713
Nine months	42,463,451	134,672,000	202,274,555

Carnegie Will Improve Homestead Steelworks

Carnegie Steel Co., Pittsburgh, has plans under consideration for extensive improvements at its Homestead works at Munhall, Pa., the largest unit of this subsidiary of the United States Steel Corp. No details have been announced but it is understood considerable new mill machinery will be involved in the construction program in addition to open-hearth furnaces. The plant has 65 basic open-hearth furnaces, mostly of small size, with a total ingot capacity of 2,613,200 tons annually. Plates and shapes constitute the principal finished products rolled at the plant.

Davison Making Silvery

Davison Coke & Iron Co., Pittsburgh, has started production of silvery iron at its Neville Island plant. This grade

is being produced in silicon contents of 7 to 17 per cent. Davison also has been selling foundry, basic, bessemer and malleable iron from Neville Island.

Sheet Wages Unchanged; Bar Iron Rates Reduced

Wage rates in sheet and tin plate mills having contracts with the Amalgamated Association of Iron, Steel and Tin Workers will be unchanged for November and December, due to the fact the average sales price of Nos. 26, 27 and 28 gage black sheets was 2.40c per pound in September and October, the same as in July and August. The rates will remain 7½ per cent above base. Following is a comparison of price averages and wage changes:

Sept.-Oct.	2.40c	unchanged
July-Aug.	2.40c	—3 per cent
May-June	2.50c	—4.5 per cent
March-April	2.65c	+1.5 per cent
Jan.-Feb., 1931	2.60c	—3 per cent
Nov.-Dec.	2.70c	—1.5 per cent
Sept.-Oct.	2.75c	unchanged
July-Aug.	2.75c	—4.5 per cent
May-June	2.90c	unchanged
March-April	2.90c	—4.5 per cent
Jan.-Feb., 1930	3.05c	unchanged
Nov.-Dec.	3.05c	unchanged
Sept.-Oct.	3.05c	unchanged
July-Aug.	3.05c	unchanged
May-June	3.05c	+1.5 per cent
March-April	3.00c	unchanged
Jan.-Feb., 1929	3.00c	unchanged

Wage rates in bar iron mills having contracts with the Amalgamated association will be reduced in November and December, as the average sales price of bar iron in September and October was 1.65c per pound, compared with 1.70c in the preceding two months. Puddlers will receive $10.05 per ton, instead of $10.30. Further price comparisons:

	1931	1930	1929
Jan.-Feb.	1.70c	1.95c	2.00c
March-April	1.70c	1.90c	2.00c
May-June	1.70c	1.90c	2.00c
July-Aug.	1.70c	1.80c	2.00c
Sept.-Oct.	1.65c	1.80c	2.00c
Nov.-Dec.		1.70c	2.00c
Yearly average..		1.841c	2.00c

Economic Storm Warnings Impractical, Says Farrell

Washington—"Impractical" was the word applied to plans for a national economic council to warn the public of impending business storms by James A. Farrell, president, United States Steel Corp., and Eugene Meyer, governor of the Federal Reserve board. They expressed their views Oct. 29 before a senate committe obtaining opinions of industrial leaders and others on this "pet" economic theory. Mr. Meyer said in boom periods "the voice of warning" would not be heeded.

During the hearing Mr. Farrell stated that "things look a little better in the steel business at present." Production was resumed Nov. 2 at the Corporation's plant at Braddock, Pa., giving work to 4000. Employment by the Corporation, he said, now at 77 per cent, will soon move to a higher level. Mr. Farrell expressed opposition to abolition of the antitrust laws, but believed some modification might tend to stabilize industry.

Announce New Officers for Mechanical Engineers

Conrad N. Lauer, president, Philadelphia Gas Works, Philadelphia, will assume the presidency of the American Society of Mechanical Engineers at the annual meeting to be held in New York, Nov. 30-Dec. 4, it has been announced by the society following tabulation of the mail ballot.

Vice presidents were elected as follows: Robert M. Gates, vice president, Superheater Co., New York; Charles M. Allen, professor of hydraulic engineering, Worcester Polytechnic institute, Worcester, Mass.; Fred H. Dorner, mechanical engineer, Milwaukee; and Williams B. Gregory, professor of experimental enginering, Tulane university, New Orleans.

Three new managers selected were: Alexander J. Dickie, editor, *Pacific Marine Review*, San Francisco; Eugene W. O'Brien, editor, *Southern Power Journal*, Atlanta, Ga.; and Harry R. Westcott, president, Westcott & Mapes Inc., New Haven, Conn.

Dominion Steel Manager Expects More Business

Sydney, N. S.—The steel plant of the Dominion Steel & Coal Co. is not likely to remain idle through winter, in the opinion of H. J. Kelley, general manager, who has returned from Montreal accompanied by C. B. McNaught, president, and George Downes and C. Croff, directors.

The plant is now running with only small orders for rods and bars, but the general manager has great hopes for future operations. Sydney's request that an order for rails for the Canadian National Railways be placed here is now under consideration by the minister of railways at Ottawa.

Colorado Stirred as Pipe Order Goes to Birmingham

Denver, Colo.—Much comment, most of it adverse, has been aroused by the action of the Denver water board in awarding the American Cast Iron Pipe Co., Birmingham, Ala., the contract for 46,920 feet of cast iron pipe.

Sentiment is that the award should have been made to the Colorado Fuel & Iron Co., Denver and Pueblo, Colo., in order to provide employment at home. The original bid of the Colorado company was about 12 per cent above that of the American company.

Under the Colorado law, other things being equal, a local bid can be up to 5 per cent higher than a foreign one and still win the business, but when the Colorado company offered to reduce its bid, the Denver water board regarded a change in the award as unethical.

The Business Week In Washington

GREATER leadership in business must be assumed by trade associations, said Dr. Frank M. Surface, assistant director, bureau of foreign and domestic commerce, in a recent statement.

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Dr. E. A. Goldenwesier, director of the research division, federal reserve board, told a senate committee that the reduction of almost 50 per cent of industrial production is due partly to hoarding of money.

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Reports to the department of commerce indicate 25 per cent of the iron exports of Czechoslovakia this year have gone to soviet Russia.

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Industrial production and factory employment, which usually increases at this season, showed little change from August to September and, consequently, the federal reserve board's seasonally adjusted indexes declined.

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A report on the progress of the new National Credit Corp. was made to President Hoover by George M. Reynolds, of New York, chairman, and several other bankers.

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Class I railroads had 535,602 surplus freight cars in good repair and immediately available on Oct. 14, according to the American Railway association.

Steel River Shipments Are Up at Pittsburgh

River shipments of iron and steel products in the Pittsburgh district increased slightly during September and were the largest for any month this year since May despite a decrease of about 70 per cent from a year ago. Shipments on the Ohio river of 49,269 tons were practically the same as in August, but on the Monongahela shipments increased from 14,522 tons in August to 25,508 tons in Septem-

(*Concluded on Page* 92)

Steel Export Drop Unchecked But September Imports Gain

FOR the second consecutive month the export trade in iron and steel products was lower in September than in the month preceding. The two-month decline in imports was ended, however, when that trade registered a gain of less than 1000 tons.

Exports in September totaled 69,768 gross tons, 3570 tons under the August figures of 73,338 tons. Imports rose 827 tons to total 30,966 tons, according to the iron and steel division, department of commerce.

IMPORTS AND EXPORTS
Gross Tons

	——1931——		——1930——	
	Imports	Exports	Imports	Exports
Jan.	40,781	92,745	43,624	223,766
Feb.	28,045	91,212	43,326	197,225
March	40,401	109,512	56,618	238,329
April	47,872	101,081	53,686	208,604
May	37,176	91,407	54,315	195,425
June	37,819	75,585	48,953	159,273
July	37,190	84,466	39,083	131,580
Aug.	30,139	73,338	35,405	150,922
Sept.	30,966	69,768	40,285	131,045
9 mos.	330,389	719,346	415,295	1,636,169
Oct.	.....	.....	38,344	131,845
Nov.	.....	.....	43,098	111,979
Dec.	.....	.....	40,754	101,992
Total	.....	.....	537,491	1,981,985

Twenty-eight of the 46 classes of products included in the export trade registered declines during September. Most of these were in small amount, however, and only black sheets, 3971 tons, and barbed wire and woven wire fencing, 1337 tons, exceeded 1000 tons in amount. In point of tonnage the leading products in September's trade were scrap, plain structural shapes, tin plate, welded steel pipe, and black sheets.

Gains were registered by 18 of the 34 classes of products included in the import trade, there being 13 decreases and 3 instances in which there was no trade in either September or August.

ORIGIN OF SEPTEMBER IMPORTS
Gross Tons

	Steel ingots, blooms	Steel scrap	Cast iron pipe	Steel bars
Belgium	1,051	.....	.....	1,888
Canada	.....	739	.....	.....
Czechoslov.	.....	.....	.....	9
Dominican Rep.	.....	7	.....	.....
France	481	.....	236	1,151
Germany	117	.....	.....	1,396
Sweden	9	.....	.....	193
Unit. King.	3	.....	.....	39
Total	1,661	746	236	4,676

Belgium remained the chief source of supply—10,987 tons being received from that country in September. Concrete bars, 2902 tons; structural shapes, 2311 tons; merchant steel bars, 1888 tons; and sheets, 1189 tons, accounted for the major part.

Shipments of iron and steel to countries of North and Central America and the West Indies alone of the five major geographical divisions rose during September over August. Exports to this area during September accounted for 57.4 per cent of all shipments.

IMPORTS OF IRON AND STEEL PRODUCTS
Gross Tons

Item	Sept., 1931	Aug., 1931	Sept., 1930
Pig iron	5,104	3,122	10,330
Sponge iron	1	.....	1
Ferromanganese, spiegeleisen (1)	976	2,295	2,265
Ferrochrome (2)	.....	.....	.....
Ferrosilicon (3)	22	.....	4
Scrap	746	3,094	2,233
Ingots, blooms	1,661	903	3,218
Concrete bars	3,571	2,930	3,666
Hollow bar, drill steel	127	175	189
Merch. steel bars	4,676	4,338	2,414
Iron slabs	.....	.....	.....
Iron bars	30	11	91
Wire rods	593	333	400
Boiler, other plate	1	6	.....
Sheets, skelp	1,852	630	788
Tin plate	34	18	48
Structural shapes	5,266	5,650	6,537
Sheet piling	2	.....	.....
Rails, fastenings	303	172	2,221
Cast pipe, fittings	236	149	351
Welded pipe	888	887	654
Other pipe	223	336	664
Barbed wire	404	962	263
Round wire	138	150	225
Flat wire, strip	74	50	100
Wire rope	177	121	122
Other wire	21	31	51
Hoops and Bands	2,857	1,946	2,916
Nails, tacks	446	1,305	418
Bolts, nuts, rivets	57	37	33
Castings, forgings	169	238	77
Total	30,966	30,139	40,285

(1) Manganese content.
(2) Chromium content.
(3) Silicon content.

DESTINATION OF SEPTEMBER EXPORTS
Gross Tons

	Galvanized steel sheets	Tin, terne plate	Black sheet	Steel bars
Argentina	17	980	422	1
Brazil	173	250	13	14
Canada	156	178	4,122	511
Cent. America	396	.....	2	44
Chile	.....	250	.....	14
China	220	1,125	530	125
Colombia	274	6	59	4
Cuba	97	83	18	13
Dutch E. Indies	189	136	.....	4
Finland	4	.....	.....	6
France	.....	.....	326	.....
Greece	20	.....	.....	.....
Italy	9	38	76	.....
Japan	25	2,347	325	16
Java	9	.....	3	.....
Mexico	91	666	50	13
Norway	61	.....	.....	3
Panama	206	.....	.....	365
Philippines	842	260	.....	32
Peru	9	391	72	3
Soviet Russia	.....	.....	.....	20
United King.	1	.....	518	645
Uruguay	3	146	.....	.....
Venezuela	273	2	.....	5
Total	2,889	7,236	6,639	2,000

ORIGIN OF SEPTEMBER IMPORTS
Gross Tons

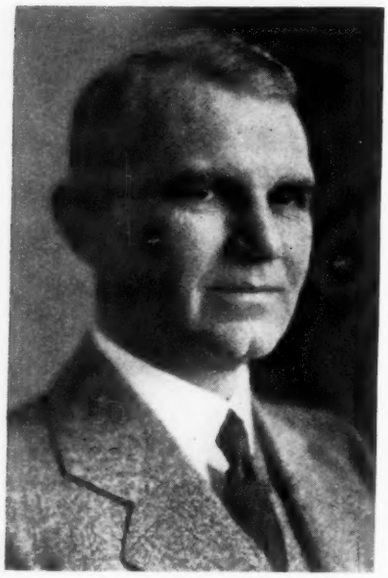
	Iron ore	Pig iron	Manganese	Ferro-manganese
Brit. Ind.	.....	4,814	1,820	.....
Brazil	.....	.....	4,217	.....
Brit. W. Af.	.....	.....	16,409	.....
Canada	.....	103	.....	643
Chile	65,450	.....	.....	.....
Cuba	.....	.....	.....	31
Germany	.....	.....	.....	2
Mexico	101	.....	.....	.....
Netherlands	.....	113	.....	.....
Norway	17,164	.....	.....	20
Spain	304	.....	.....	.....
Sweden	.....	74	.....	.....
Soviet Russia	15,780	.....	4,175	.....
United King.	325	.....	9	280
Total	99,124	5,104	26,630	976

EXPORTS OF IRON AND STEEL PRODUCTS
Gross Tons

Item	Sept., 1931	Aug., 1931	Sept., 1930
Pig iron	668	891	833
Ferromanganese, spiegeleisen	36	68	73
Scrap	10,000	10,424	8,394
Ingots, blooms	950	143	256
Iron bars	98	90	171
Steel bars	2,000	1,984	3,739
Alloy steel bars	37	133	487
Wire rods	2,675	2,167	1,288
Boiler plate, not fabr.	2,523	3,000	5,938
Skelp	3,577	2,503	12,959
Iron sheets, galv.	202	218	428
Steel sheets, galv.	2,889	2,976	5,059
Steel sheets, black	6,639	10,610	10,339
Iron sheets, black	234	246	998
Hoops, bands, strip	1,098	1,811	2,609
Tin, terne plate	7,236	6,643	21,402
Shapes, not fabr.	9,520	7,937	12,128
Shapes, plates, fabr.	843	1,370	7,805
Metal lath	285	212	1,224
Frames, sashes, sheet piling	191	593	2,409
Rails	1,576	2,392	6,526
Rail fastenings	307	610	1,236
Boiler tubes	656	534	1,158
Casing, pipe, seamless and welded	1,126	1,740	2,952
Malleable iron screwed pipe fittings	218	255	720
Iron screwed pipe fittings	96	139	463
Iron pressure pipe fittings	887	710	590
Iron soil pipe, fittings	161	459	1,099
Welded black, galv. steel pipe	7,201	4,534	5,368
Welded black, galv. wrought pipe	594	330	713
Plain black or galv. wire	835	1,417	1,474
Barbed wire, woven fencing	1,005	2,342	3,567
Woven-wire screen cloth	55	74	122
Wire rope	211	144	453
Other wire	672	320	445
Wire nails	340	622	870
Tacks	37	40	27
Bolts, nuts, rivets	272	401	659
Iron castings	246	306	339
Steel castings	99	295	558
Car wheels, axles	523	423	1,371
Forgings	533	416	294
Total	69,768	73,338	131,045

Industrial Men in the Day's News

R. C. Todd, Assistant Vice President, American Rolling Mill Co.



HIS introduction to the steel industry was in the construction of American Rolling Mill's first plant.

STUDY of the automotive industry's steel problems fitted him for the Detroit managership in 1915.

AFTER 31 years with this company he now is appointed assistant vice president.

R. C. TODD, who as noted in STEEL, Oct. 1, has been appointed assistant vice president, American Rolling Mill Co. Middletown, O., has been with that organization 31 years, since the time when its first plant was being built.

Just out of high school, back in 1900, his introduction to the steel business was by way of carrying water to the construction forces erecting American Rolling Mill Co.'s first plant in Middletown. A little later he became the company's first office boy. Duties of a general utility nature gravitated to him, such as recording shipments and preparing manifests, so he gradually worked into the position of traffic man. The company was then so small it had no regular traffic department.

However, sales activities were far more alluring to him, so he was given a clerical position in the sales division. During this period many new products were being developed, and he had the rare opportunity of watching the evolution of the sheet business from the common grades to the specialties. Later this experience was to prove exceptionally valuable, for he was in charge of the company's specialty sheet sales for a number of years.

While in this position Mr. Todd became particularly interested in the automobile industry, and made numerous special studies both from the standpoint of the mill and the fabricator. As a result, he is the author of several articles dealing with the subject of automobile sheets. It was because of this specialized knowledge that Mr. Todd was made district manager of the Detroit territory in 1915.

In 1924, the company's sales organization was expanded, and Mr. Todd was promoted to the position of assistant general manager of sales with headquarters in Middletown. His new responsibilities as assistant vice president, which became effective Oct. 1, will involve special work in sales activities.

Starting as a mere youngster, Mr. Todd has never ceased to take a personal interest in all forms of athletics. He is a member of the Detroit Athletic club, which is home to him a good part of the time. He thoroughly enjoys a fast set of tennis and, at the age of 49, is ranked as an expert player.

JOHN C. NEWMAN, Montreal, Que., and E. C. Miller, Philadelphia, have been appointed vice presidents, Algoma Steel Corp., Sault Ste. Marie, Ont., to fill vacancies created by the appointment of Sir William Stavert as chairman of the board and the resignation of Alexander Taylor.

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Ralph Leavenworth has been appointed general advertising manager, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., He will have charge of all publicity and advertising activities of the company, including advertising division of the merchandising department, now centered at Mansfield, O. Mr. Leavenworth has been identified with both Austin Co. and Standard Parts Co., Cleveland.

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Daniel Seltzer, president, Ohio Cultivator Co., Bellevue, O., was elected president of the National Association of Farm Equipment Manufacturers, at the close of the thirty-eighth annual convention held at Chicago, Oct. 21-23.

Charles Deere Wiman, president, Deere & Co., Moline, Ill., was elected chairman of the executive committee.

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Leonard J. Buck, president of Leonard J. Buck Inc., New York, importer of ores and other raw materials, sailed recently for a business trip to Sweden and Germany.

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Carroll deV. Miller, who for the past four years has been an independent manufacturers' agent at Buffalo, has been appointed manager of the eastern branch, Philadelphia, of American MonoRail Co., Cleveland, succeeding the late L. E. Gaston.

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Harry S. Sleichter, formerly vice president, North American Refractories Co., Cleveland, has severed his connection with that company and is

now associated with General Refractories Co., New York, in a sales capacity with headquarters in New York.

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W. J. Clarke has been appointed factory representative for Brainard Steel Corp., Warren, O., succeeding H. K. Rhodes, resigned.

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W. L. Mellon has been elected a director, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., succeeding the late Harrison Nesbit.

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E. M. Butler, formerly in the sales department, Edward G. Budd Mfg. Co., Philadelphia, in charge of engineering changes, has been appointed chief inspector.

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C. C. Hurlburt, formerly southwestern representative, Joseph Greenspon's Iron & Steel Co., St. Louis, is now in a sales capacity with Iverson Tool Co., Tulsa, Okla.

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James A. Campbell, chairman of the board, Youngstown Sheet & Tube Co., Youngstown, O., has resigned as director, Youngstown, O., chamber of commerce.

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L. W. Erickson has been appointed to succeed E. L. Parsons as district representative, Milwaukee, for Foote Bros. Gear & Machine Co., Chicago.

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W. E. Botz has succeeded J. O. Campbell as Tulsa, Okla., representative for Butler Mfg. Co., Kansas City. Mr. Botz was formerly in charge of the Enid, Okla., district.

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George H. Corliss, formerly advertising manager, S. A. Woods Machine Co., Boston, has been appointed advertising and sales promotion manager, J. A. Fay & Egan Co., Cincinnati.

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H. W. Kilkenny, formerly with Ohio Brass Co., Mansfield, O., is now associated with his brother, J. G. Kilkenny, who together will represent Central Tube Co., Pittsburgh; W. N. Matthews Corp., St. Louis; and Maloney Transformer Co., St. Louis, in the Cleveland district.

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Harry Sloan, advisory engineer, Vilter Mfg. Co., Milwaukee, has been elected president of the Engineers Society of Milwaukee; Fraser Jeffrey, electrical engineer, Allis-Chalmers Mfg. Co., Milwaukee, vice president; and Walter R. Mueller and Hugo W. Rohde have been re-elected treasurer and secretary, respectively.

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W. C. Heath has resigned as vice-president, Fairbanks, Morse & Co., Beloit, Wis., in charge of all manufacturing, and on Nov. 1 assumed important executive duties with A. O. Smith Corp., Milwaukee. A. W. Thompson, who has been an executive of Fairbanks, Morse & Co. for 29 years, succeeds Mr. Heath.

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Lewis F. Shoemaker has been appointed president, Shoemaker Bridge Co., Pottstown, Pa., succeeding his father, who died Oct. 15.

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A. A. Probeck has been appointed sales manager, Federal Machine & Welder Co., Warren, O. Mr. Probeck has been in the welding business since 1910, having been with the Federal company first from 1912 to 1917, to which he returned in 1931.

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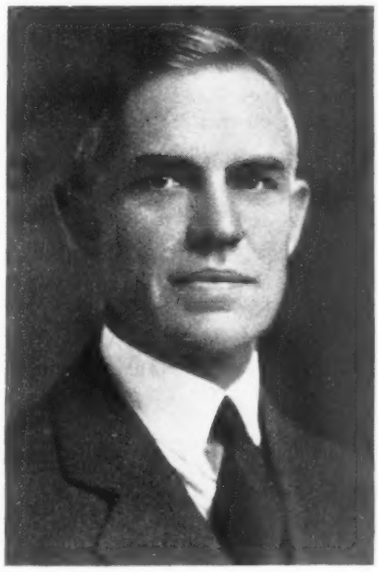
Edwin G. Merrill, president, Bank of New York and Trust Co., New York, has been elected a director of the Virginia Iron, Coal & Coke Co., Roanoke, Va., to succeed the late John B. Newton.



Daniel Seltzer

Increased Use of Gas Lifts Regulator Demand

Minneapolis-Honeywell Regulator Co., Minneapolis, thermal control equipment, reports increased demand for its products since the inauguration of mixed natural and artificial gas in large consuming centers, through completion of the Texas-Chicago pipe line. The company is marketing a new product, a radiator control to be affixed to individual domestic radiators.

It expects a satisfactory profit this year, although one not up to normal. The company's income for the first half of 1931 was $184,167, after all charges, compared with profit of $17,041 for the similar period of 1930, and $293,538 for first half of 1929.

Obituaries

REUBEN MILLER, 59, former vice president, Crucible Steel Company of America, died Oct. 23 at Pittsburgh. He was born in Pittsburgh and received his preliminary education there, later being graduated from Yale university. He entered the Crescent Steel Co., of which his father was president, and when the company was absorbed by Crucible he became vice president of the merged company.

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Richard T. Marter, 66, superintendent, National Enameling & Stamping Co., Milwaukee, died Oct. 20. He was associated with the Milwaukee industry 49 years.

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Elmer W. Deved, assistant superintendent of production, Yale & Towne Co., Stamford, Conn., died Oct. 27 at Stamford, Conn. He had been with the company 34 years.

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George J. Misch, 51, superintendent, Peerless Motor Car Corp., Cleveland, for 20 years until his retirement two years ago, died Oct. 27 at Cleveland. He first entered the automotive industry with White Motor Co., Cleveland.

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Henry A. Magoun, 68, for 20 years until his retirement five years ago senior vice president and general manager, New York Shipbuilding Co., Camden, N. J., died at Bath, Me., Oct. 25. After learning the machinist's trade in his youth he worked for Bath Iron Works, Bath, later working for Maryland Steel Co., Sparrows Point, Md., first as draftsman and later as superintendent.

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Herbert B. Bond, 58, associated with Pratt & Inman Co., steel jobbers, Worcester, Mass., for 37 years, died Oct. 24. He was born in South Belchertown, Mass., and his long service with Pratt & Inman followed business connections with Washburn & Moen Mfg. Co., now the Worcester, Mass., mills of American Steel & Wire Co., and Harrington & Richardson Arms Co., Worcester.

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Carl B. Woodworth, 47, western manager and railroad manager for Vanadium Corp. of America, New York, with headquarters at 310 South Michigan avenue, Chicago, died Oct. 24, in Chicago. After his graduation from Purdue university as a mechanical engineer, Mr. Woodworth spent a number of years with the Baltimore & Ohio railroad. Later he was South American representative for the American Locomotive Co., New York, and has been with the Vanadium Corp. of America for the last five years.

Here and There in Industry

DOAK & PILLING, Franklin Trust building, Philadelphia, has been formed by Samuel E. Doak and George P. Pilling, to function as industrial engineer for appraisal, management and operation of plants. Mr. Doak formerly was with William W. Hearne Inc., Philadelphia, and has been active in mining work in this and foreign countries. Mr. Pilling has been secretary of Pilling & Co., Philadelphia, which is being dissolved.

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Alfred Fisher Furnaces Inc., 1235 Fifty-second avenue, Cicero, Ill., has appointed Herbert C. Beik, 21 East Fortieth street, New York, its representative in the eastern states.

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R. B. B. Industrial Gas Corp., Pittsburgh, has changed its name to the American Process Gas & Metals Corp., with offices at 335 Fifth avenue, Pittsburgh. R. W. Beattie is president.

□ □ □

Midland Machine & Specialty Shop, Midland, Tex., has been organized by E. E. Davis and F. E. Lee, formerly with the Humble Oil & Refining Co. The new company will specialize in servicing and repair of oilfield tools.

□ □ □

P. M. Steel Products, St. Louis, has been formed to acquire the assets of the Shampaine Aseptic Furniture Co., St. Louis. Phil Mayer is president and general manager of the new company.

□ □ □

Sloss-Sheffield Steel & Iron Co., Birmingham, Ala., has appointed F. W. Marshall & Co., Pennsylvania building, Philadelphia, its exclusive sales agents in Eastern territory for Sloss pig iron.

□ □ □

Shepard Niles Crane & Hoist Corp. has moved its Chicago office from the Peoples Gas building to 564 West Monroe street. Walter B. Briggs is district manager and G. G. Robbins is associated with him.

□ □ □

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., will concentrate at Mansfield, O., the manufacture of cabinets for electric refrigerator units, heretofore carried on at Springfield, Mass.

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D. W. Peabody, for 25 years connected with the southeastern district office of the General Electric Co. at Atlanta, Ga., has opened consulting engineering offices at 588 Linwood avenue, Atlanta. He will specialize in mechanical and electrical engineering.

□ □ □

Barnett Bros., Buffalo, heating and ventilating contractors, have moved from 82 Geary street to larger quarters at 1282 Abbott road. Ideal Furnace Distributing Co. will be included in the operations of the Barnett concern.

□ □ □

Foote Bros. Gear & Machine Co., Chicago, has abandoned the proposition to merge with the Dodge Mfg. Corp., Mishawaka, Ind. The committee appointed to receive stock deposits for the merger has announced deposited stock will be returned.

□ □ □

Scully Steel & Iron Co. and Illinois Steel Warehouse Co. have consolidated their offices and warehouses at 1319 Wabansia avenue, Chicago, under the firm name Illinois Scully Steel Warehouse Co., as of Nov. 1. Charles Heggie, president of Scully, will be president and C. W. Shepherd, manager of Illinois Warehouse company, will be vice president.

□ □ □

Portland Aircraft Corp., Portland, Ind., has moved its operations to the plant formerly occupied by the Standard Mfg. Co., Portland, where larger facilities are available. Machinery is being installed for the production of planes and parts.

□ □ □

Zollner Machine Works, Fort Wayne, Ind., Theodore Zollner manager, will start operations within a short time. The new plant has been finished and equipment moved from the abandoned plant at Duluth, is nearly ready for operation.

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Timken-Detroit Co. and Silent Automatic Co., Detroit, manufacturers of oil burner equipment, have completed arrangements for a merger, effective Jan. 1, 1932, under the name of Timken Silent Automatic Co.

□ □ □

McCabe & Sheeran Machinery Corp., 50 Church street, New York, is liquidating the former plant, real estate and equipment of the Industrial Brownhoist Corp., at 4403 St. Clair avenue, Cleveland, that company having removed its manufacturing operations to Bay City, Mich.

□ □ □

Olney J. Dean & Co., Chicago, engineers and steel reinforcing bar fabricators, have removed to the Builders building, La Salle street and Wacker drive, from the Home Insurance building, La Salle and Adams streets, Chicago. The latter building is being wrecked.

□ □ □

Doehler Die Casting Co., New York, and Bohn Aluminum & Bronze Corp., Detroit, have entered into an arrangement under which the Doehler company takes over the Bohn company's die-casting division in exchange for the former's permanent mold department.

□ □ □

May Trailers Inc., Shreveport, La., H. B. May, president, has started operations in its new plant at Morgan City, La. The main building is 90 x 112 feet, with electric-welded steel frame. The company manufactures all-steel and combination trailers for industrial and oil field use.

□ □ □

Harding Bros. Inc., Elmira, N. Y., has transferred its general offices and plant Chicago to Elmira. The company manufactures precision bench lathes, tool room lathes, bench milling machines and collets. The new plant, just completed, gives better manufacturing procedure.

□ □ □

Perfect Circle Co., Hagerstown, Ind., had a gain of 38 per cent in sales in August over the same month a year ago. For eight months of this year sales were 21 per cent ahead of the same period of 1930 and lacked only half of one per cent of equaling the record-breaking first eight months of 1929.

□ □ □

American Manganese Steel Co., Chicago Heights, Ill., has moved its Chicago offices from 333 North Michigan avenue to room 1414 McCormick building, 332 South Michigan avenue, where the offices will be connected with those of the parent company, the American Brake Shoe & Foundry Co. E. F. Mitchell and E. R. Dougherty will be in charge of sales.

□ □ □

Caldwell-Moore division, Link-Belt Co., Chicago, has been formed by merger of the George W. Moore Co. and the H. W. Caldwell & Son Co., both of Chicago, the latter already a subsidiary of the Link-Belt Co. Max H. Hurd, former president of the Moore company, becomes a vice president of the Link-Belt Co., in charge of Caldwell-Moore operations.

□ □ □

International Harvester Co., Haskelite Mfg. Corp., Chicago, and Mt. Vernon Car Mfg. Co., Mt. Vernon, Ill., are collaborating in the building of a motor truck container designed for the co-ordination of rail and truck shipments. A feature is collapsible or disappearing wheels. The container can be clamped to flat cars. It soon will be demonstrated at the McCormick works in Chicago of the International Harvester Co.

MIRRORS of MOTORDOM

DETROIT

NOT since the automobile industry in July, 1921, attained proportions warranting compilation of official statistics has production been so low as in the past 10 days. With the total for both passenger cars and trucks now below 18,000 units per week, October is indicated as little better than a 100,000-unit month.

This certainly insures a level lower than November, 1930, and probably below December, 1929—depths to which the industry had not descended in any month since the winter of 1921-1922.

For all practical purposes 12 manufacturers are closed—Graham, Hudson-Essex, Chevrolet, Chrysler, Dodge passenger division, DeSoto, Oakland-Pontiac, Studebaker, Lincoln, Durant, Peerless and Marmon. This is the worst of the picture.

Because production is so exceptionally low, hopes are the more persistently held that within a fortnight releases on 1932 models will develop and the last half of November and the first half of December will supply the equivalent of a moderately good month's output.

Chevrolet Placing Steel

Ford and General Motors are understood to have ready for release orders for parts totaling $150,000,000 to $200,000,000, a portion of this having already filtered out to parts makers. But through that portion of the steel trade which is tributary to the automotive industry, the strain of Chevrolet business is most pronounced.

Except for belated assembly at some distant branches, Chevrolet has completed the run on its current 6-cylinder job. Reports of a schedule of 80,000 units for November appear over-optimistic, as it will be at least Nov. 15 before noteworthy assembly is scheduled. The most trustworthy report is that Chevrolet will produce about 40,000 units in December.

Undoubtedly, the micro-mesh transmission will be handed down in some modified form to Chevrolet from other General Motor units. While the 1932, bodies appear roomier, there is virtually little increase in inside dimensions.

Whatever length is added to the 1932 models probably will be in the fenders and hood. The running board will be the same length. The 1932 Chevrolet radiator will show a trend toward the V design, and downdraft carburetion appears a certainty.

Ford Gains Leverage

Ford's decision to eliminate the $1 per day advance announced from the steps of the White House in November, 1929, further complicates competition in the low price field. From Dec. 1, 1929, to Nov. 1, 1931, Ford has produced approximately 1,500,000 cars. On the basis of his statement that this increase cost him $35,176,101, the added cost per car resulting from this gesture has been $23.

In addition, a good many materials for the 1932 line have come down in price. Therefore, there is some speculation whether Ford will utilize immediately or hold in reserve this increase leverage on price.

Ford, who has been assembling just under 10,000 units a week of the old Model A, is understood to have scheduled 65,000 units between now and Jan. 1 and 70,000 units in January.

Chrysler is reported to have formulated a policy of resuming production shortly on the basis of 4 days a week, employing as many men as in midsummer, and operating steadily through December and January, even though this entails considerable stocking of cars.

◆

Some conservative minds in the industry do not look for noteworthy business until late in 1932, perhaps not until after the presidential election. There is plenty of speculation, however, that with even a moderate show of improvement in general conditions early next year, a substantial replacement market will mature.

One estimate is that as many as 7,000,000 passenger cars, or about one-fourth the number now on the highways, are due for replacement immediately their owners are more confident of their incomes. Presumably some of this replacement program would be satisfied by used cars.

By way of comparison, the record production of new passenger cars was 4,569,811 in 1929. Detroit, of course, does not seriously believe that so lush a market is at hand, but the extreme depression in production is creating a comparable extreme in hope.

September output of 140,566 passenger cars and trucks, compared with 187,197 in August and 220,649 in September, 1930, gives 1931 a 9-month total of 2,119,188 units. It does not seem probable that the last quarter will be active enough to make 1931 a 2,500,000 unit year, which would set it down as the poorest since 1922.

Studebaker Buys Stampings

Studebaker at South Bend has ordered stampings on a basis indicating a marked improvement in its output in 1932. Orders went to the usual sources of supply. Figures are being taken by Studebaker on some parts for its proposed Detroit-assembly low-priced car, which may possibly be called the Rockne.

Hupp will not install a purchaser of steel at Cleveland, as was presumed when the decision to make bodies there was announced. Stampings will be made elsewhere and the steel will be purchased at Detroit as heretofore.

EDITORIAL

Steel Constructors Plan To Remedy Over-Capacity Ills

IN MANY industries the serious competitive situation of today is attributed to over-production, but in the field of fabricated steel construction the difficulty is over-capacity. This was emphasized clearly in the ninth annual convention of the American Institute of Steel Construction, in which an extremely interesting plan for remedying the ills of excess capacity was proposed.

The plan is based on the principle that each shop is entitled to its proper share of the business available. If the ratio of bookings to capacity for the country is 60 per cent, then a shop with an annual rated capacity of 10,000 tons is entitled to contract for and fabricate 6000 tons during the year. This is the method by which its "quota" is determined.

If a member exceeds his quota, he is required to pay an amount above his regular dues equal to $2 per ton for the first 5 per cent in excess of his quota, and an additional $1 per ton for each additional 5 per cent excess or part thereof. These payments are to be deducted from deposits maintained in the treasury by each member, such deposit amounting at all times to 25 cents per ton of his assumed annual capacity. Penalties are provided for submitting inaccurate or incomplete reports and provision is made for the appointment of a "director of trade relations," who will work under the direction of the institute. His principal duty is to keep the records and compile the statistics involved in the plan.

Would Divide Country Into Districts and Organize Local Associations in Each

It is proposed that the country be divided into districts and that a local association be organized in each. Capacities and reports of bookings for each shop are to be determined and reported to each district organization and the compiled data be forwarded for examination by the director of trade relations.

Advocates of the plan believe that it will wield a strong influence for stability and specifically that it will tend to discourage constructors from going after business outside of their logical territories.

Naturally the first question which comes to mind after studying the proposal is, "Is it within the law?" The second thought is, "Is it practical?" Apparently these doubts existed among members of the institute, because while the convention went on record as endorsing the plan in principle, it charged the directors with the task of deciding as to its legality and practicability. If in their judgment the plan in its present or modified form seems workable it is to be put into effect.

The idea is worthy of the most careful consideration. It is the result of thorough and painstaking work on the part of many leaders in the industry. Regardless of what one may think of the proposal, the fact remains that the members of the institute deserve much credit for taking the initiative in attempting to lift themselves out of a difficult situation.

Success of Plan Will Depend Upon Support To Be Given by Influential Companies

Success of the plan will depend largely upon the number of companies that will agree to operate under its provisions. Unless a majority of the stronger companies support the agreement, the idea is doomed at the start.

Given the backing of the influential firms in each district, the plan probably would help considerably in reducing destructive practices. Its value in promoting improved sentiment among steel constructors cannot be over-emphasized. It also provides a new bond of common interest which should stimulate enthusiasm for the other work in which the institute is engaged.

But as to the ultimate success of the scheme in correcting the evils of competition, there is basis for serious doubt. The history of industry is replete with failures of similar plans.

However, this is no reason for condemning the proposal in advance. If it is declared legal and if it seems workable it should be given a fair trial. Even if it should fail ultimately, it may have within its provisions advantages which will prove of great benefit to the industry during the present period of stress.

If it but serves the purpose of stimulating thinking along constructive lines, it will have been well worth the effort.

Acceptance

OF CHANGE IN ISSUE DATE

WE ARE pleased and gratified with the spontaneous and complete acceptance of our change in issue date from Thursday to Monday.

The following excerpts from two of the many letters received are indicative of this acceptance:—

> *"You have made a great many outstanding improvements in STEEL, first with the change in name from "Iron Trade Review" and last but not least—arranged date of issue as of Monday in each week. This last move is certainly pleasing to everyone in our organization that reads STEEL. Your issue coming in the first mail on Monday morning bringing previous review of the calendar week is splendid."*

> *"Of the several changes in your progressive policies, I like the last one best. It was quite a thrill to receive your October 5 issue up here in New England on Monday, October 5. The change is sensible and helpful."*

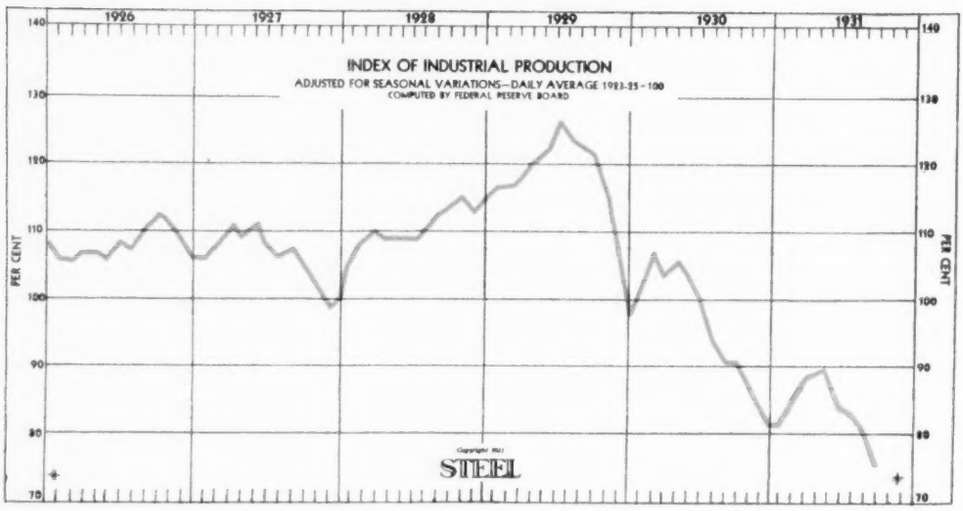
This is in harmony with the favorable reception accorded our other major changes.

STEEL

For forty-eight years—IRON TRADE REVIEW
Published Every Monday

CLEVELAND - NEW YORK - PITTSBURGH - CHICAGO - LONDON

THE BUSINESS TREND



1930	
Sept.	91
Aug.	91
July	94
June	100
May	104

1931	
Sept.	76
Aug.	80
July	83
June	84
May	89

Restoration of Confidence Is Painfully Slow

STATISTICS for October probably will confirm the belief that business has not changed appreciably from September levels. Production of steel ingots doubtless will be reported at slightly under the September rate and the change in pig iron output promises to be insignificant. Fluctuations in other barometers of activity are to be expected, but the general average will not indicate any marked trend.

Prices are undergoing a gradual adjustment which may lead to a more clearly defined movement. For several months commodity prices have been see-sawing in a fairly narrow range, but in recent weeks a firmer tone has been faintly perceptible. This behavior of price indexes is encouraging many observers into the belief that the end of the major downswing is near at hand. The average business man hopes this will prove true, but he has been disappointed so many times in the past two years that he is reluctant to believe anything until he can see it.

Freight Rate Decision Offsets Wages As Influence on Prices

Quotations of finished steel are unchanged, but prices of pig iron, which in certain quarters have remained stationary throughout a dull period, have been revised downward. This caused STEEL's composite of 14 steel and iron products to drop to $30.68 in the last week of October, as compared with an average of $31.03 for the month of September.

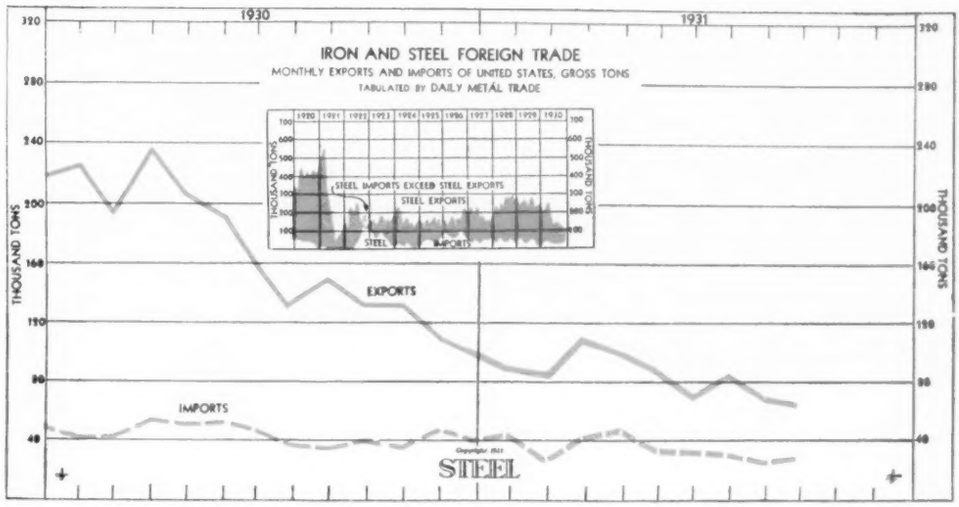
When wages in the steel industry were cut several weeks ago there was a possibility that the action would affect prices. Since that time the launching of the National Credit Corp. and the invitation by the interstate commerce commission to railroads to increase rates on materials used in steelmaking have served not only to divert attention from the wage question but also to wield an influence for higher prices.

Banking Situation Still Is Chief Obstacle to Business Pickup

The freight rate decision, which at first was greeted with consternation, now seems to be regarded more complacently by life insurance companies and other groups of investors and also by the railroad executives. Little is being said about railroad wages, nevertheless they offer an avenue to relief if the roads and the brotherhoods can be persuaded that the next step is greater economy in operations and not an increased rate burden on shippers.

While the National Credit Corp. is beginning to function, the fact remains that the most disturbing element in American business still is the banking situation. The banking pool helped allay fears in many quarters, but the thus far unchecked number of failures is disconcerting. Marked improvement in business will not appear until confidence in banking institutions is restored.

Faint signs of slightly improved demand for steel are visible, but here again real betterment awaits the stimulation of confidence.



Exports

	Tons
Sept., 1931	69,768
Aug., 1931	84,466
Sept., 1930	131,235

Imports

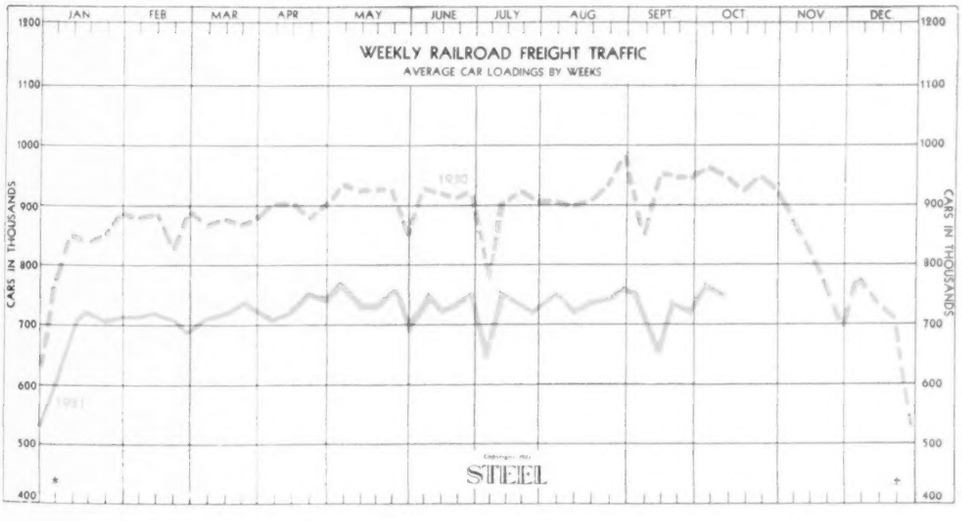
Sept., 1931	30,966
Aug., 1931	30,139
Sept., 1930	40,285

Iron and Steel Exports Decline, While Imports Gain

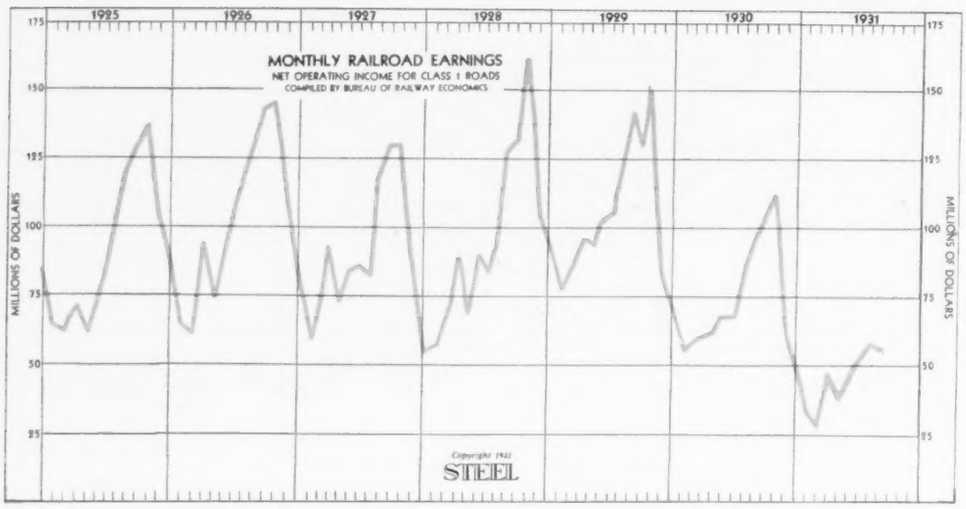
The United States export trade in iron and steel products dropped to a new low for September with 69,768 gross tons. This is a decline of 3570 tons from August. However, the two-month long decline in imports came to an end when that trade registered a gain of 827 tons, to total for September 30,966 gross tons. In the export trade there were 28 declines registered against 18 increases. In imports, gains were registered by 18 of the 34 classes. Most of these gains and losses were in small amounts, the principal items showing an increase were pig iron and sheets. Imports in the nine months of 1931 total 330,382 tons, compared with 415,277 tons for the same period last year.

Freight Car Loadings Establish New Peak for 1931

Revenue freight car loadings experienced a very favorable rise following the recovery from the holiday activity. For the week ending Sept. 12, the trend established a new seasonal low with 667,750 loadings. The following week loadings totaled 742,628. While this total is lower than for the same period of last year, the trend redeems itself by establishing a new peak for 1931 with 777,837 loadings for the week ending Oct. 3. In the first week of October, 193,418 fewer cars were loaded, compared with the 1930 week, and in the second period of October 190,918 fewer cars were loaded. For the year to date loadings were 18.8 per cent under last year and 26.8 per cent below the like period of 1929.



	1931	1930
Oct. 10	763,864	954,782
Oct. 3	777,837	971,255
Sept. 26	738,029	750,381
Sept. 19	742,628	952,512
Sept. 12	667,750	965,713



Million Dollars

	1931	1930
Aug.	55.8	95.6
July	56.5	83.0
June	50.1	69.1
May	41.2	69.3
April	39.0	62.6

Railroad Earnings Drop Slightly; Income for Eight Months Down Sharply

The four month continued rise of railway earnings from $39,074,311 in April to $56,534,-903 in July has been temporarily checked, with a slight loss in August amounting to $55,858,-734. In August, 1930, when the income was $96,017,674, the roads were receiving 3.33 per cent on their property investment compared with the rate of 1.90 per cent for August of this year. Class I railroads for the first eight months of 1931 had a net operating income of $350,943,778 which amounts to a return of 2.14 per cent on their investment, compared with 3.45 per cent for the same period of 1930. Of the 171 roads represented, 35 operated at a loss in the first eight months of this year.

Independent Sheet Steel Output Down, Reduction Continues in Stocks

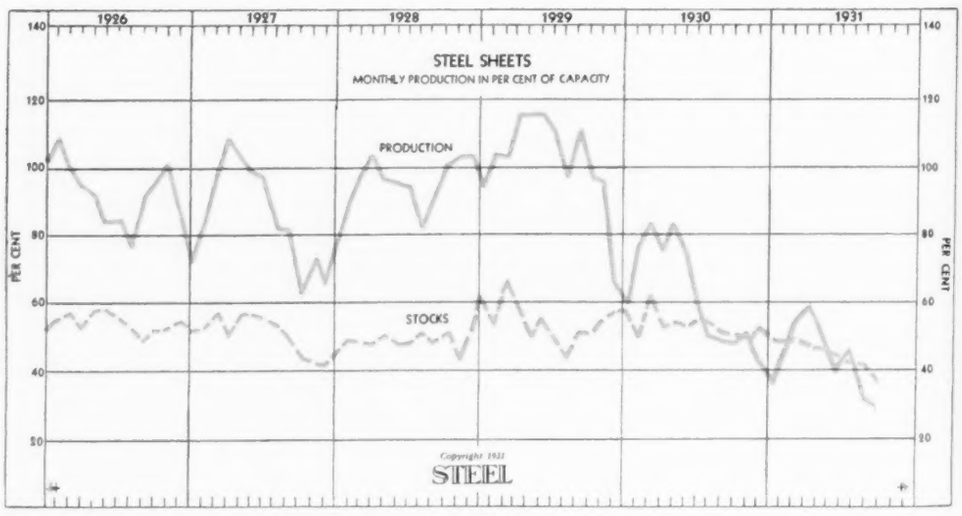
Production of steel sheets in September established the lowest level in many years according to the report of the National Association of Flat Rolled Steel Manufacturers. Total production dropped from 34.9 per cent of capacity in August to a new low of 32.0 per cent in September. Shipments declined from 42.7 to 33.8 per cent. Stocks followed the course taken by production and declined from 42.1 in August to 39.2 per cent in September. Sales which in August were at the rate of 34.6 per cent fell to 33.0 per cent in September. Production of steel sheets totaled 48.8 per cent in September of 1930, while stocks for the same period were 50.4 per cent of capacity.

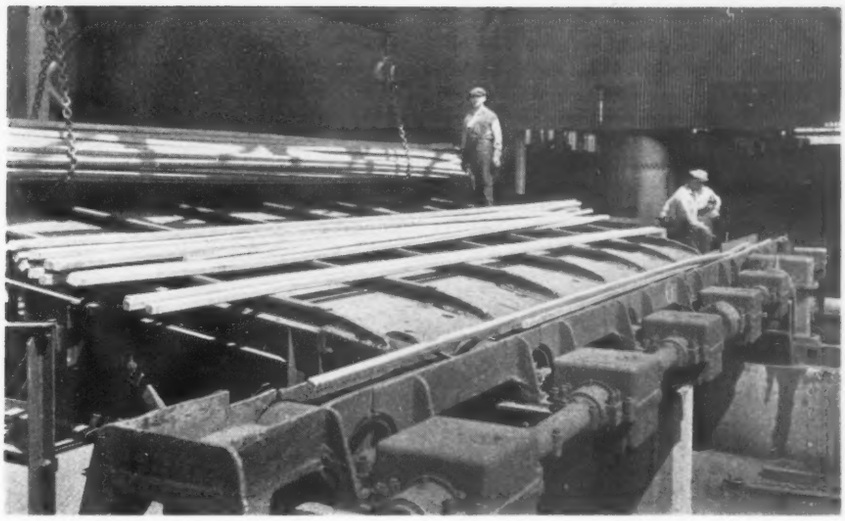
Production
Per cent of capacity

	1931	1930
Sept.	32.0	48.8
Aug.	34.9	48.6
July	46.3	50.4
June	40.3	58.8

Stocks
Per cent of capacity

	1931	1930
Sept.	39.2	50.4
Aug.	42.1	50.9
July	42.6	54.9
June	45.8	57.3



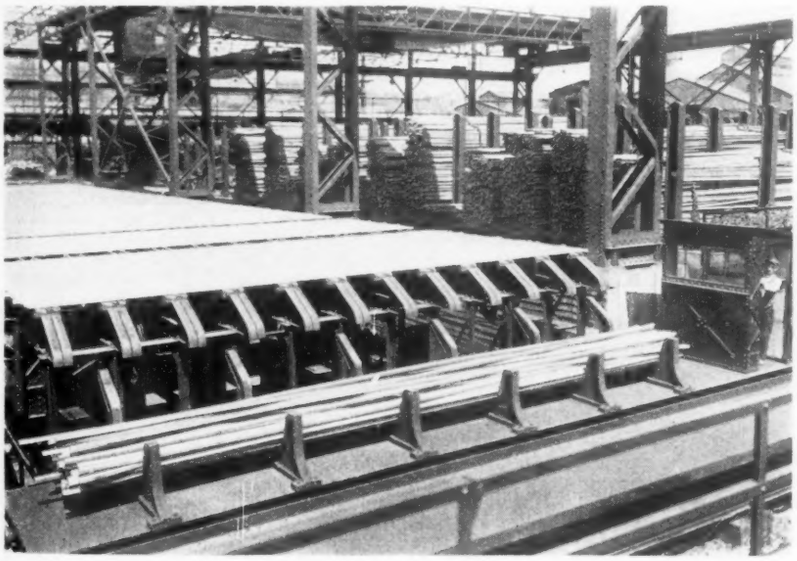


YARD crane delivering 2 x 2-inch billets to the loading skid. The approach table in the foreground carries the billets to the heating furnace in the continuous rod mill

Continuous Billet and Rod Mills Are Included in Plant Additions

IMPROVEMENTS and additions to the Donora plants of the American Steel & Wire Co., which were announced and authorized a year ago, now have been completed and are in successful operation. The improvements consist of the construction of a new continuous billet mill for the steelworks and two new double-line continuous rod mills for the wire works, together with auxiliary equipment.

The Donora plants are located on the Monongahela river at Donora, Pa., about 30 miles from Pittsburgh. They occupy a river frontage of approximately 4 miles. The Monongahela river is improved with locks and dams clear to the Ohio river, and with the completion of the canalization of the Ohio river from Pittsburgh to the Mississippi river, provides water transportation every day in the year from the Donora mills to all points on the Monongahela, Ohio, and Mississippi rivers.



Billets being delivered from the cooling tables to the power operated billet transfer buggy. Stocks of billets and yard crane which handles them are shown in the background

The new ten-pass continuous billet mill takes a 7½-inch square bloom and reduces it to a 2 x 2-inch x 30-foot billet. The bloom is supplied to the billet mill by a 40-inch blooming mill, the bloom being cropped and cut to the correct length by a steam-driven down-cut shear. On one side of the shear is a depressing table, recently installed, which prevents the bending of the bloom during the process of shearing. A transfer table conveys the bloom to the power-driven feed rolls in front of the 24-inch mill. A new slab transfer table has been installed near the depressing table so that when the blooming mill is running on slabs they can be conveyed to cars located on a depressed track.

Heretofore the smallest billet

to be rolled by the steelworks was 4 x 4-inch. In order to take care of the rolling of this size, in addition to the 2 x 2-inch billets, it was necessary to provide a certain flexibility to the mill. The first six passes of the billet mill, therefore, consist of a 24-inch train of rolls which reduce the bloom to a 4 x 4-inch billet. This billet either can be reduced further by four passes in an 18-inch train of rolls which bring the billet down to 2 x 2-inches, or it can be transferred to a roller feed table which feeds the billet into a power shear to be cut up into standard lengths of 4 x 4-inch billets.

Placed on Cooling Tables

A flying shear is located at the proper distance from the continuous billet mill for cutting 2 x 2-inch billets to the desired length. Power-driven rollers and a skew table are used to separate the billets, if it is necessary to do so, in accordance with that part of the ingot from which they were rolled. They can be placed on three separate cooling tables if so desired. Cooling tables have an approximate capacity of 450 tons of billets. Each table is equipped with a power-driven straight edge which removes the billets from the entering table to the cooling tables. Billets are transferred from cooling tables to an electrically operated billet transfer car which conveys them to the billet yard.

All gears in this billet mill are completely encased and, together with bearings, are lubricated by a continuous circulating stream of oil, the oil being returned by means of collectors to the filtering system, so that it is purified and maintained at a uniform temperature.

The motor room of the billet mill is located adjacent to the roll stands, and in it are housed the electrical switchboards and two large motors which drive the mill, speed reducers, and encased gear drives. The motor room is provided with a large ventilating fan which blows filtered air around the motors and motor-generator sets. The fan also maintains a room pressure, preventing any outside dust from entering. The 24-inch mill is powered by a 5000-horsepower motor; the 18-inch mill by a 4000-horsepower motor.

The mill and auxiliary equipment are operated from four control stations. The one at the 24-inch mill operates bloom transfer table, slab transfer table, and approach table to the 24-inch mill. The second station is located between the 24-inch and 18-inch mills and operates the intermediate table, the crop shear, the 4 x 4-inch billet transfer table, and the two large motors operating the entire mill. The third station controls the flying shear, runout table from the shear, skew tables and billet retarder. The fourth station operates the cooling tables and the loading of the transfer buggy. The mill is said to be one of the highest speed mills of its type in the United States, with capacity for rolling 130 gross tons of billets per hour.

Complete Handling Facilities

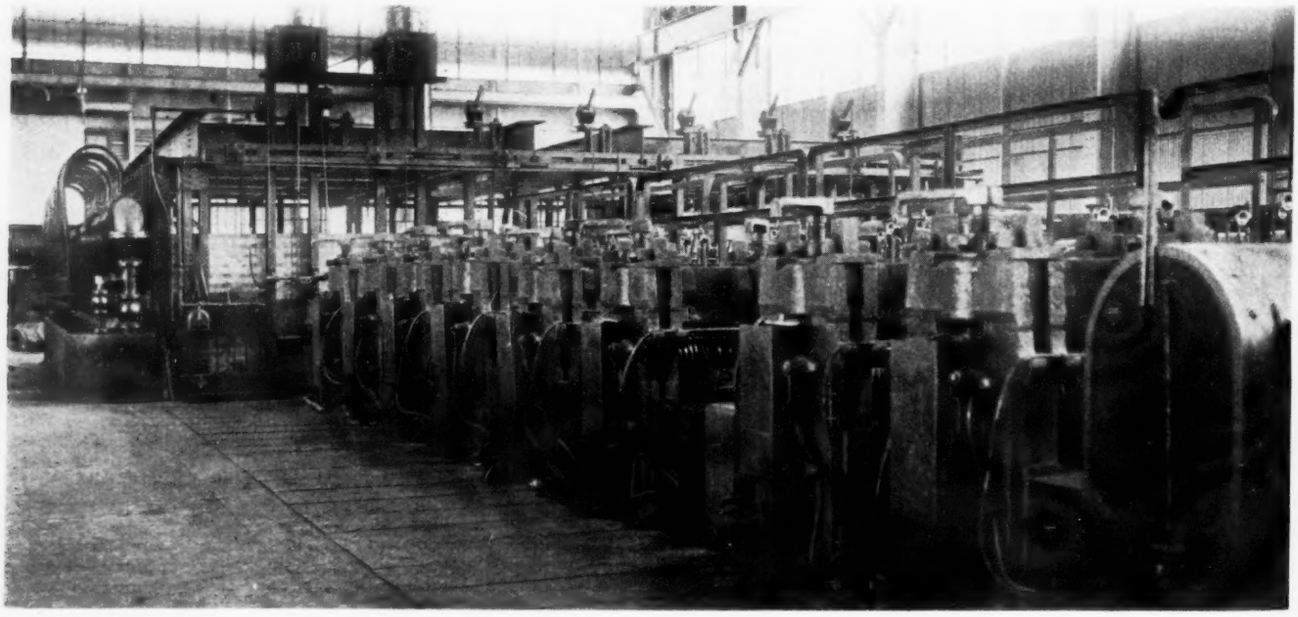
Many novel and interesting features are incorporated in the design and installation of the two continuous rod mills. Standard size billets handled in the billet yard are 2 x 2 inches by 30 feet, weighing approximately 400 pounds. Variations in size, either under or over, or in length under 32 feet, can be handled according to orders received. The yard is spanned by two 15-ton electric traveling cranes with 115-foot span. The cranes lift the billets from the buggy that operates from the cooling tables to the billet yard, and either places the billets in stock or takes them directly to the rod mill. Grades of steel are kept separate by suitable racks, each rack being numbered and the steel plainly marked to prevent any confusion. A stock of over 12,000 tons of billets can be carried at all times, a sufficiently large backlog to provide immediate service for the most urgent customer.

Two Continuous Rod Mills

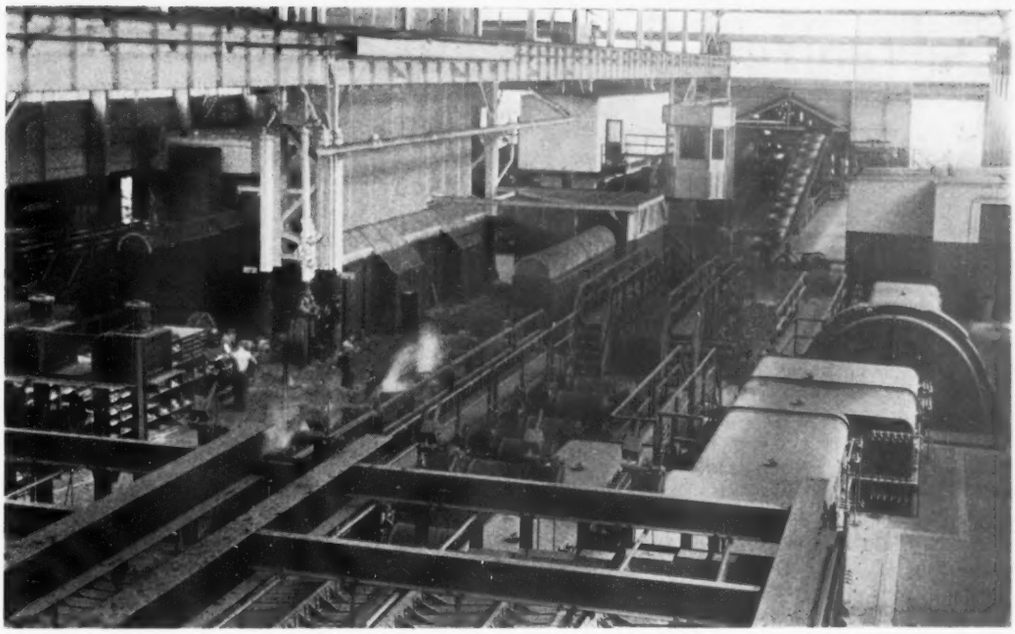
The two rod mills are alike, with the exception that one is a right-hand type and the other a left-hand type, with the operating sides of the mills facing each other. Each rod mill is equipped with a loading skid directly under the billet yard crane, and is supplied by means of the crane. An approach table leads from this skid to the continuous billet heating furnace.

The furnace is of modern design with a flat arch, at present being fired by natural gas. It is completely equipped with a preheater, automatic air control, and other automatic regulators. The billets are pushed into the side of the furnace by a pinch roll and pushed down the hearth by suitable arms operating from an electric pusher. By means of a pushout mechanism the billets are fed directly to the first set of rolls of the continuous rod mills.

Each mill consists of 18 sets of rolls which, by variation in roll size and increase in speed, take care of the elongation of the bar. Particular care was taken in the design of the mill, bed plates being of rugged and substantial construction,



A section of one continuous rod mill showing the 8-pass roughing mill, with continuous billet heating furnace in the background



GENERAL view of one of the continuous rod mills from the top of the heating furnace. Adjoining the furnace are roll trains with drive and gear reduction units. In the distance are the reels, operating pulpit and loaded conveyors

one piece for the finishing mill and one piece for the roughing mill. Housings are substantial, accessible and adjustable for easy regulation of the mill.

The rod passes from the finishing stand of rolls to the revolving reels. In order to guard against breakdowns and interruption in production, each mill is supplied with two conveyors and six reels. A mechanism is provided by means of which the rod can be switched to any one of three reels. Reels are of heavy construction, each one driven by its own motor and completely equipped with automatic control devices. From the reels the coil of rods is pushed off upon a drag conveyor which carries the rods from the mill and delivers them finally on a hook-type conveyor. This conveyor provides uniform cooling and transports the rods either to the storage building, cleaning house or to the shipping tracks.

Attention to Lubrication

Rod mills are equipped with separate oiling systems, complete with the necessary filters and thermostatic control to maintain uniform temperature. All pinions and gears operate under a continuous flow of oil and all bearings have suitable wipers on the shaft, together with proper collectors and returns so that the oil is ultimately returned to the oiling system. The units in the oiling system are made and tied up in such a manner that no breakdown in any part of the oiling system will interfere with the production of the mill. An interesting sidelight is that after four months of operation practically no oil has been lost.

In designing the mills extreme care was taken to observe all safety standards which have been accepted throughout the industry. All revolving shafts are covered; solid cases enclose all gears; lubrication is automatic; and screens have been erected between the mills and in other places to guard all passageways from any flying rod which might cause injury.

For the master operation of each mill, a pulpit was erected and installed with the necessary control devices. Mill motors, reel motors, rod conveyors and other mechanisms are controlled from these pulpits from which all operations of the mill are visible.

Twin Buildings Erected

The rod mills are housed in twin buildings, each 72 feet wide by 386 feet long, designed, fabricated and erected by the American Bridge Co. Sidewalls are constructed with the lower 10 feet removable. Power is received at an outdoor substation at 25,000 volts and stepped down to 6600 volts for the main motors of all mills.

The tendency of the trade has been toward heavier bundles, both in wire and rods, and the foregoing improvements were designed and made to meet this demand and also in anticipation of still heavier bundles for future requirements. Use of heavier bundles naturally results in decreased manufacturing cost of finished products, due to greater machine efficiency and less amount of scrap. Annual capacity of the two mills is about 200,000 tons of rods, ranging in size from No. 5 to 5/16-inch inclusive.

Studies Accident Remedies

A company engaged in both coal and metal mining recently published in its safety bulletin an analysis and classification of 600 lost-time injuries. The following tabulation, of interest to all industrial plants, shows the steps which probably would have prevented the mishaps and the percentage of each:

	Per cent
Discipline	17.68
Instructions on safety methods of working	15.12
Warning to be more careful	12.38
Enforcement of safety rules	11.69
Improved inspection methods	8.42
Change of new tools or equipment	7.05
Lack of personal safety equipment	6.00
Additional safeguards	4.64
Change in methods of doing work	4.47
Change in plant layout	3.94
Safety education	3.09
Physical examinations	2.23
More suitable work for employes	1.55
General discussion at safety meetings	1.03
Clean-up of plant	0.36
Enactment of new safety rules	0.35
Total	100.00

Issues 1931 Supplement to Book of Standards

The American Society for Testing Materials has issued the 1931 supplement to its 1930 *Book of Standards*. The latter is published only every third year, and standards which are adopted by the society in the intervening years are issued in supplement form.

The 1931 supplement is a pamphlet of 144 pages, containing 32 standards adopted or revised by the society on Sept. 1. Seventeen of the standards are new, and 15 are replacements of existing standards. The society now has 443 standards in effect, all of which are listed in the present supplement.

Three of the metals standards involve ferrous materials: Alloy steel bolting material for high-temperature service; welded wrought iron pipe; and high test gray iron castings.

Galvanized Steel Fabricated With Bronze Welding

FABRICATION of galvanized steel by welding meets with objection on the part of many users of this material. In the manufacture of most products, fabrication is completed first, then the finished unit is galvanized. On the other hand, the size of some welded products which are to be exposed to severe corrosive influences makes galvanizing after fabrication impractical.

In these cases, the structure must be fabricated from galvanized stock and here welding presents a difficult problem. The zinc coating is affected by the welding heat, thus weakening the structure's resistance against rust and corrosion. However, these difficulties can be largely overcome by bronze welding, according to H. F. Reinhard, chief engineer, J. B. Colt Co., New York, who discussed this problem before the fall meeting of the American Welding society in Boston, Sept. 23.

The Colt company manufactures acetylene generators used largely in rural farming sections to produce gas for lighting and cooking and because of their nature these units can not be galvanized after fabrication. The generator is buried in the ground except for about 6 inches of the top and not only is the steel subjected to the damaging influences of constant exposure, but the combination of carbide and water generating gas in the interior submits it to a severe test against corrosion. Construction is of light-gage sheets and it has been found that life, strength and water-tightness have all been increased by intelligent use of the bronze weld.

Difficult Assembly Problem

One generator of popular size is 7 feet 8¼ inches high and 3 feet in diameter. Assembly is a difficult problem because the interior of the tank contains an intricate mechanism to control the flow of gas and to control the contact of 200 pounds of carbide with the water in the bottom. The gas bell is a vital part, the gas rising and feeding automatically.

Formerly the vertical seam of the tank was soldered, now it is butt welded and the bell top seam is lap welded. A newly developed high-strength bronze welding rod is employed, the metal flowing freely with absence of any boiling and fuming of the weld metal. The weld is remarkably free from blowholes and is sound in every respect, according to Mr. Reinhard; and further, tensile strength is greater with the new rod and remelting has little effect on the structure of the joint.

Experience of the company indicated that of tanks returned to the shop before welding was used, 24 per cent showed slight seam leaks; after welding was adopted no seam leaks have occurred as a result of handling. Tests revealed that the seams are 315 per cent stronger than the double-locked soldered seams.

Although the cost of welding as compared with other methods largely is undetermined, the first cost probably is slightly higher, but bronze welding facilitates fabrication and conserves material. The most important factor, however, is the saving in future trouble. Almost without exception, the generators are installed in rural sections away from facilities for repairs; thus servicing them always has constituted one of the important problems.

Mr. Reinhard made no claim that the galvanizing entirely escapes damage when welding is used to fabricate the tanks. The back and edge of the galvanizing adjacent to the weld is affected to some degree, but he was positive in his belief that the effect is far less than might be expected.

Less heat required in the welding operation results in less damage to the galvanizing and development of the bronze weld with the improved rod has given surprising success. By the same token, it is claimed that by other methods of fabrication as in double lock seaming, for example, some damage to the galvanizing also results. In welding, the sheared edges are protected by the weld itself.

Galvanizing damage may be repaired by retinning to prevent rust and corrosion. The outside of the vertical seam is retinned as it is most subject to corrosion. All seams, with the exception of the gas bell seams, then are painted with a black asphalt paint which dries quickly.

Welding is performed on a fixture which permits the use of heavier metal. The oxyacetylene process is used in the welding and damage to the galvanized coating rarely extends more than ⅛ inch on either side of the weld.

In connection with bronze welding of tanks, it was pointed out that this process is popular in the construction of metal furniture, the metal taking the weld at a low temperature and showing a freedom from blow holes.

Gold Dredging Equipment Is Carried Into New Guinea By Airplanes

AIRPLANES were utilized by the Bulolo Gold Dredging Ltd., British New Guinea, to haul in heavy mining equipment from the coast to the company's gold mine, 32 miles inland. Considerable time was saved in this way, for the former water route was a circuitous one. Because of the mountainous nature of the country, cost of building a road was prohibitive. The air line hurdled mountains over 2 miles high.

Three all-metal type G-31 Junker airplanes with specially reinforced fuselages and oversized hatchways have been chartered by the company. On a trial flight, one of the planes, carrying 3½ tons of freight, a crew of three and fuel for 1½ hours, climbed 7500 feet in 11 minutes and with one engine cut out gained nearly 500 feet elevation in 2 minutes. Each plane has three 450-horsepower air-cooled engines giving a full-load speed of 115 miles per hour.

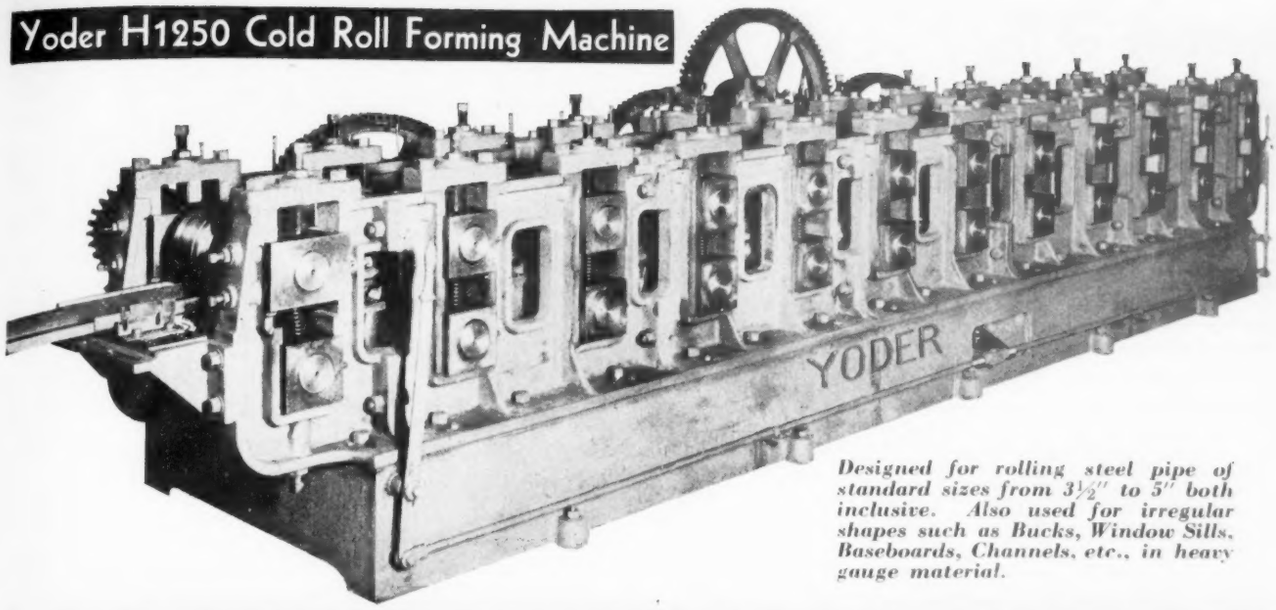
The dredging equipment, comprising many castings and forgings of manganese and other alloy steels, was so designed that no part would weigh more than 8 tons, this being the capacity of the planes. Just recently the fleet delivered to the mining site a number of steel bucket dredges equipped with 18 motors ranging up to 200 horsepower each, switching equipment and 200-kilowatt transformers, all manufactured by the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

Not only are the planes utilized to haul in mining machinery and other supplies, but they take out the gold. For some time, trucks, tractors and building materials have been flown in.

Aside from normal flying hazards, the plane crews fear cannibals, for Papua, British New Guinea, is known as the home of authentic African man eaters.

Railroads have reduced the quantity of coal burned in locomotives until in 1930 138 pounds performed the same labor that required 197 pounds in 1920.

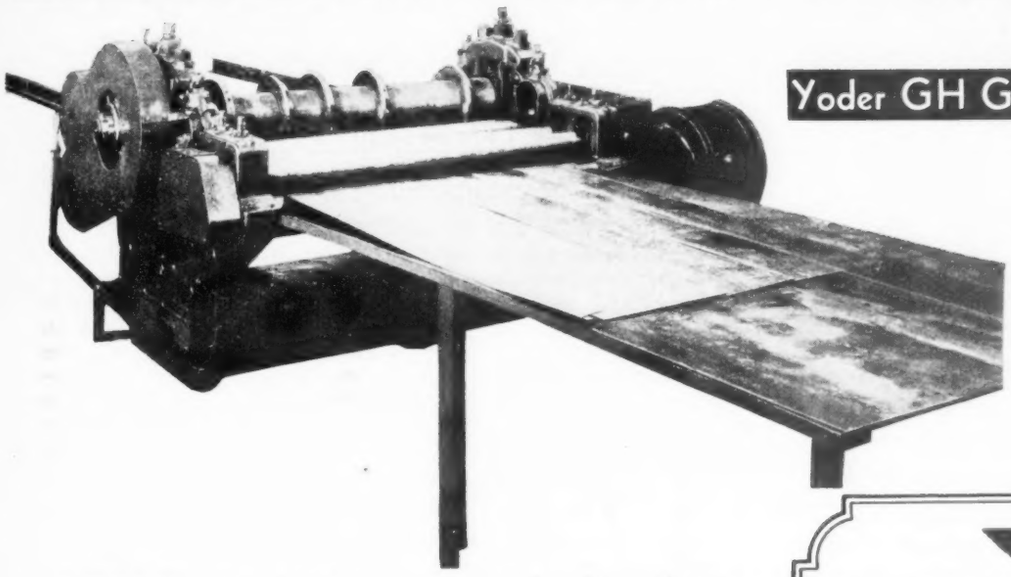
Yoder H1250 Cold Roll Forming Machine



Designed for rolling steel pipe of standard sizes from 3½" to 5" both inclusive. Also used for irregular shapes such as Bucks, Window Sills, Baseboards, Channels, etc., in heavy gauge material.

PLATE AND SHEET WORKING MACHINES

Yoder GH Gang Slitting Shear



Made in sizes from 24" to 72". Capacity of 48" Shear 7 cuts ¼" or 4 cuts ⅜" steel. Capacity 72" Shear, 2 cuts ⅜" steel.

YODER pipe forming equipment handles all sizes from ⅛ inch to 36 inches diameter, and wall thickness from tin plate to ¾ inch. The GIANT PIPE MACHINE has a capacity for forming 100 feet of 30 inch pipe—¾ inch wall thickness—per minute, and produces seams suitable for welding.

Yoder mills are backed by over 20 years experience in developing Cold Roll Forming Machines.

Designed and Built by YODER

Builders of

Gang Slitting Shears
Rotary Shears
Automobile Sheet Metal Forming Machines
Pipe Forming Machines

Consult our engineers on your sheet or plate problems

THE YODER COMPANY
W. 55 ST. and WALWORTH AVE. CLEVELAND, OHIO
PLATE AND SHEET METAL MACHINERY SPECIALISTS

Institute of Steel Construction Trains Guns on Broader Structural Market

(*Concluded from Page 24*)

foot of floor and basement walls has steel reinforcement. Steel trim should be used throughout. There are many small uses for steel as in electric conduits, radiator grille fronts, cabinets, etc.

Erection of a steel frame house in Cleveland was shown in a moving picture exhibited by H. G. Fitzpatrick, of the Griswold-Eshleman Co., Cleveland, for the Lincoln Electric Co., Cleveland. In this house, steel was shipped direct from the warehouse of the Carnegie Steel Co. and cut and welded on the job. The estimate of cost under this method was only $24 higher than the estimate on conventional wood frame and brick construction.

"Weldery" Provides New Market

The newest and most interesting market for steel was that introduced by Robert E. Kinkead, president, Robt. E. Kinkead Inc., Cleveland, who discussed the the problems of the "weldery"—a shop where steel is fabricated by welding to make parts for machinery and equipment.

Mr. Kinkead suggested that the work of a weldery is adapted to structural fabricating plants, but he issued a warning to those who engage in the new enterprise to avoid these blunders:

> Waste due to poor quality of workman—production facilities with attendant ruinous competition.
>
> Waste due to irresponsible selling policies.
>
> Waste due to poor quality of workmanship and engineering design, causing losses on guarantee account and loss of good will.

The speaker then discussed the tonnage in prospect that in his opinion will be diverted from castings to welded rolled steel. He estimated that a conservative figure for such tonnage in Ohio alone is 144,000 tons annually.

Fred T. Llewellyn, United States Steel Corp., New York, referred to the field of the weldery as one requiring little capital and involving little change in the mental attitude of steel fabricators. He stated that Mr. Kinkead's estimate of potential tonnage in Ohio is low; that from an independent survey he believes the market in that state is around 500,000 tons annually.

Mr. Llewellyn recommended that members of the institute consider if it is worth while to establish welderies for the production of machine parts in the rough for sale to machinery manufacturers.

"The market," he said, "involves an annual tonnage for the country of 4,00,000 tons annually," and added that he had "chapter and verse" to prove the figure is not overstated.

P. J. Horgan, General Electric Co., West Lynn, Mass., spoke on "Economy of Fabrication by Welding." He cited a half dozen welding jobs to show the wide variation in the average speed of welding. Costs and economy, he concluded, can determine only by analysis of each problem. "There is no general basis for welding costs."

The committee on aesthetic design of steel bridges recommended that instead of conducting separate design contests for architectural and engineering students as in the past two years, next year the competition be pooled and students in both schools compete in one group for the same classes. The committee also recommended that the institute's awards for the most artistic bridge structures be continued as heretofore.

A progress report on the work of the bureau of standards in connection with load and fire resistance tests on battledeck floors was presented by F. H. Frankland, director of engineering research of the institute. He estimated the exhaustive tests will be completed by August, 1932.

Promising Markets for Structural Steel Remain Undeveloped

BY LEE H. MILLER

Chief Engineer, American Institute of Steel Construction

THIRTY years ago no one would have predicted the steel tonnage possibilities which the automotive industry has since demonstrated. If at the present time the structural steel industry could point to a new market for its product that is obviously capable of equal or even greater tonnage possibilities than any existing market, it should be cause for considerable interest. To claim that two or three, or even more such untouched markets were awaiting development, would sound so fantastical that it would seem ridiculous. Such possibilities exist but are of such a nature that their developments must come from those inside the industry, and will probably never arrive if left to the evolution of a new industry such as occurred with the automotive industry.

An inventory of some of these possible markets is interesting.

Floor Market Is Greatest

The subject of steel floors has already been before the public since our Biloxi convention in 1929. In less than two years since it was announced, it is estimated that nearly a quarter of a million tons of steel have been used for floors of this type in bridges and buildings. An analysis of the tonnage possibilities for floors shows that it is at least equal to, if not greater than the present structural steel output and should ultimately exceed 4,000,000 tons per year.

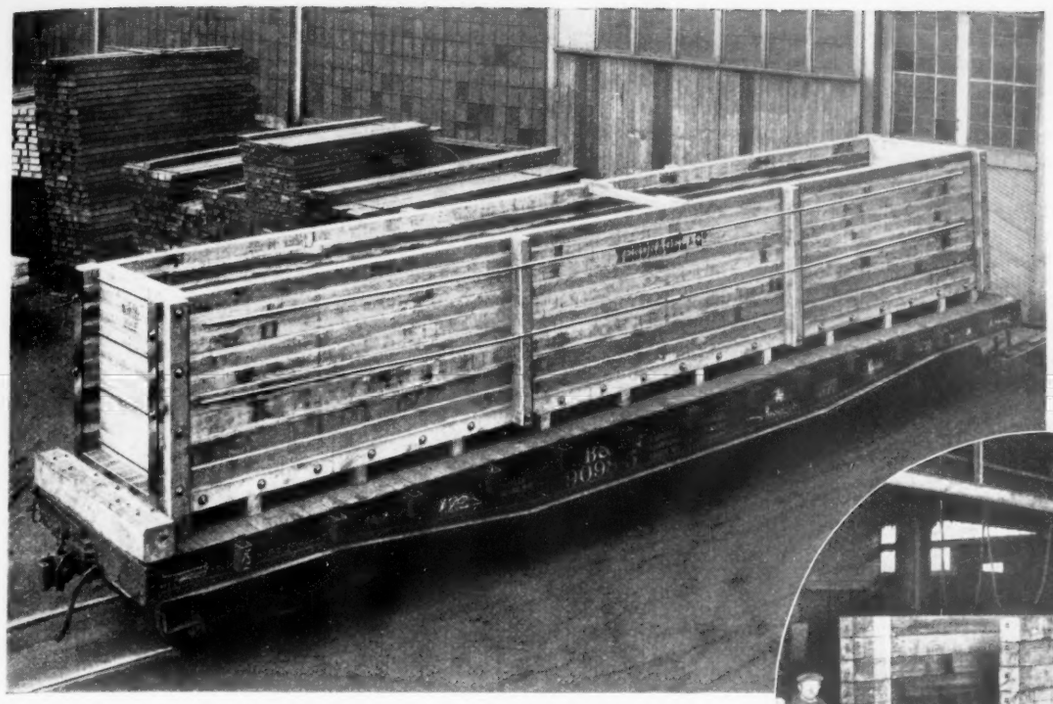
During March, 1931, the state of Iowa (a prairie state) is reported to have taken bids for the purchase of 800,000 wooden posts for roadway protection. These posts made from light 6-inch wide flange sections, and each 7 feet long, would approximate the 60,000 tons required for the Empire State building.

Road Guards Win Approval

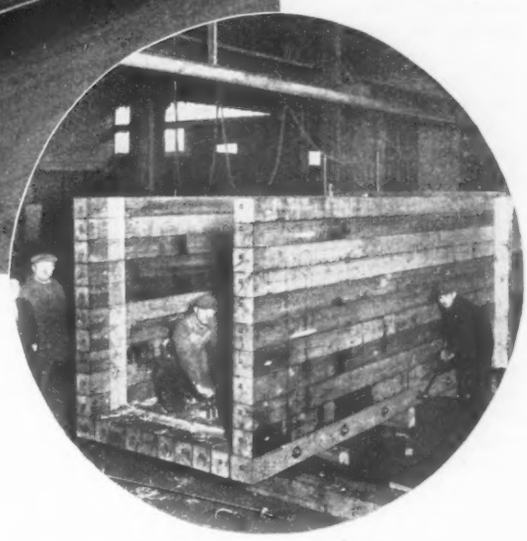
The Armorsteel road guard announced by the institute in April, 1931, has been approved by several state highway departments and several installations have been made, the most extensive being approximately a quarter of a mile near Concord, Mass. It is made on a fill containing rocks from a cubic foot in volume to nearly a cubic yard, and these constitute about as difficult a problem of installation as will ever be met.

The posts were driven with a compressed air hammer and were spaced accurately with a jig moved forward as each post was driven. Engineers of the highway department of the state estimate that they will use nearly 30,000 tons of this guard annually to replace existing guards which are little more than markers in many instances.

It is estimated that 300,000 miles of new roads will be constructed in



In circle: Tightening Monel Metal tie rods on wooden acid tanks during fabrication at WENDNAGEL & CO., Chicago.



One of two large acid pickling tanks constructed of 8" x 8" 100% heartwood long leaf yellow pine timbers fastened with rolled Monel Metal tie rods and forged Monel Metal nuts, washers and turnbuckles. These 42½' x 7½' x 7½' tanks were built this year for a prominent Chicago steel mill by WENDNAGEL & CO., Chicago.

Tough, corrosion-resisting

MONEL METAL tie rods keep pickling tanks TIGHT!

No. 51
Pickling Equipment that passes the test of service

HAVE you discovered *this* way that Monel Metal helps cut costs and retard depreciation in pickling departments? Equip your wooden pickling tanks with steel-strong, corrosion-resisting Monel Metal tie rods...and stop acid leaks before they start!

Many acid tanks come to an untimely end because their joints cannot be completely tightened at the start. Pickling liquor seeps through and rots the wood...and no amount of tightening can then remedy the trouble. But Monel Metal tie rods keep joints snug and leak-free right from the beginning.

You can "take up" on these tough rods to the necessary tightness without danger of stripping the threads or stretching the rods.

Due to its high Nickel content and uniform rolled structure, Monel Metal has remarkable tensile strength and is extremely resistant to the corrosive action of pickling solutions. Consequently, it is not subject to corrosion-cracking or fatigue failure. Many processors assert that Monel Metal tie rods have doubled the life of their wooden tanks. Under severe conditions of rotted wood, used Monel Metal rods may often be salvaged for construction of the new replacement tank.

These advantages are largely due to the fact that Monel Metal is nearly 70 per cent Nickel. When you purchase new equipment, remember that "Nickel Alloys Perform Better Longer", and that Monel Metal is a high Nickel alloy.

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL STREET, NEW YORK, N. Y.

A HIGH NICKEL ALLOY

MONEL METAL

NICKEL ALLOYS PERFORM BETTER LONGER

Monel Metal is a registered trade mark applied to a technically controlled nickel-copper alloy of high nickel content. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

the United States in 1931. If 1 mile of each 25 of these roads were protected with the Armorsteel road guard it would require nearly 1,500,000 tons of steel. Protection for existing unguarded roads, and the replacement of present guards, indicate a market approaching the tonnage now used for structural purposes.

A great deal of publicity has appeared over the past five years on the question of steel for residence purposes. It has been stated that more than 750,000 new homes are required every year in the United States to take care of the new families, and those homes which must be abandoned due to age when they are more than 50 years old. Assuming only 500 square feet of floor for each of these residences, the steel possibilities for floors only would be nearly 2,000,000 tons annually. In addition to this there is the possibility of a large tonnage of the interior, exterior and roof framing.

Exhibit at World's Fair

Arrangements are now under way for the construction of a model steel residence at the Chicago World's fair in 1933, and I am told that this project is already assured. It is my opinion that the steel industry should see to it that this exhibition residence is equipped with metal partitions, trim and furniture.

Sheet steel piling already has demonstrated its merits for piers and bulkhead construction, but it has hardly scratched the surface of its ultimate possibilities. Uniform data and technical information on such work are so limited in distribution that projects involving this material are limited almost entirely to individual promotion. A uniformly recognized handbook dealing with this subject would disseminate data to the engineering professions that would result in great tonnages of steel. Such a handbook should also authoritatively deal with the proper use of rolled steel sections as piles for load carrying foundations where another large market is awaiting to be released by a wider distribution of information in a form free from suspicion of individual interest or bias.

There can be no question as to the merits of steel for dam construction as it will meet the requirements of cost and serviceability, but if it is to be more widely used it will be necessary to exploit its possibilities and merits by reliable technical literature and carefully directed work.

In every large city where traffic is heavy the only street curbs that survive are those protected by steel. Tradition says these curbs should be made of natural stone or concrete, but experience demands that they be protected by steel usually in the form of a plate or an angle. This steel itself answers the eternal question of corrosion under the most severe conditions of exposure. Instead of a plate or an angle protection strip a full steel curb section should be used. Such a section could resemble the present center sill section with a rounded corner for the single upper flange. Two or three different depths of a section of this kind would fulfill all the requirements of both business and residential districts.

Conduits in Curbs

Steel curbs could be further developed to carry the numerous conduits now buried in the streets and might, in some cases, consists of a tunnel through which workmen could carry on installations and repair. The tonnage possibilities are difficult to estimate.

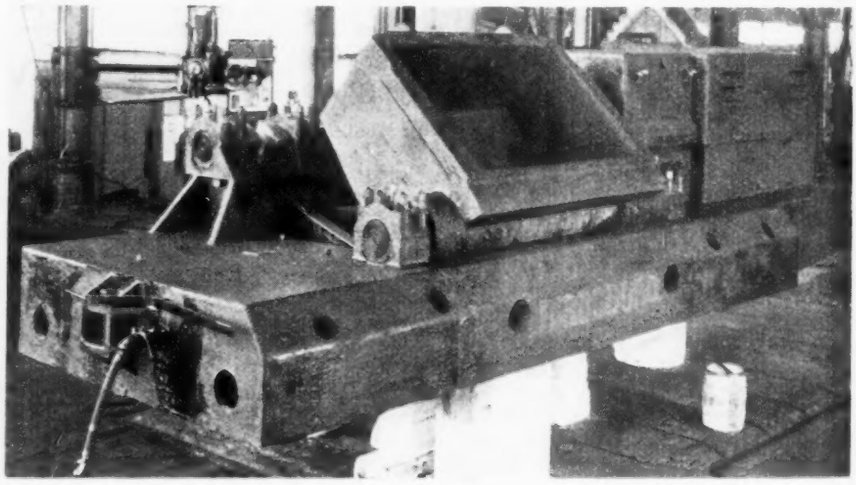
There are still other markets for steel, some of which may not promise as substantial a tonnage as the ones already mentioned. In every large city in America there is the problem of parking space for automobiles. This has become so acute that in some cities the large department stores have found it necessary to create parking facilities for their customers. If such parking arrangements existed the results would no doubt be a very marked increase in the use of automobiles for transportation purposes. Designs have been prepared for double decking some of the existing parking lots by using sections of battledeck floor, which can be bolted in place on steel columns and supporting girders. These units can be devised so that they are easily removed from one location to another when necessity requires it.

The foregoing inventory of market possibilities may in some instances be assumed as having been overstated. If, however, it is conceded that possibilities exist in the various fields, it becomes apparent that the steel industry as it now exists, is in a state of infancy where future possibilities far exceed anything now operative. The steel industry has demonstrated its capacity for growing to meet the demands of markets as they develop, but the real issue is to develop the markets and follow their growth.

Unusually Large Ingot Delivery Car Incorporates Many Improvements

AN UNUSUALLY large ingot delivery car has just been built by the Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa., for one of the country's large steel producers. This car, shown in the accompanying illustration, weighs 128,900 pounds and is designed for transferring 50,000-pound ingots from soaking pits to the blooming mill delivery table, the soaking pit crane lifting the ingot from the pit into the carrier pot of the car. The latter is constructed throughout of steel castings and the bed frame is of thoroughly reinforced sections to permit a high factor of operating safety. It operates on standard gage track, and couplings, brakes and air hose connections are in accordance with standard railroad specifications.

The operating crankshaft, which tilts the pot upon delivery to the blooming mill table, is provided with heavy springs for absorbing shocks; this feature affords protection from damage that otherwise would result from accidental falling of ingots. Motor and controls on this car are fully enclosed with an armor protection of heavy steel castings.



Sees Straight Chrome Steels Used in Heavy Structures

CORROSION resisting steel alloys, of which the 18 per cent chromium 8 per cent nickel metal is the most prominent, have furnished the bright spot in an otherwise dull steel market during the last two years. Sales with some of the largest distributors are running ahead of last year, while 1930 volume exceeded that of the previous year.

While demand for chrome-nickel steel has been on the up-grade, some revision as to the scope of its use and its field for service has developed, according to G. VanDyke, manager, special steel department, Joseph T. Ryerson & Son Inc., Chicago, who on Oct. 17 addressed an audience of some 500 on the physical properties of chrome, and chrome-nickel steels, especially Allegheny metal, at the company's Jersey City plant.

While predicting a bright future for straight 18 per cent chrome iron, he claimed that the 18-8 per cent alloy thus far had held the public fancy far more than other types of noncorrosive alloys. It has a popular appeal in the style motif of the day with ultimate purchasers of materials for home and hotel favoring a shiny metal. Pointing to the changes and improved sanitary methods of food handling, the speaker pointed out the great increase in the use of this alloy for household utensils. Once kitchen equipment in the finest hotels called for galvanized sheets; now the demand is for noncorrosive and nonchanging metals.

Should Be Austenitic

Tracing the three methods of combination of various elements, by mixture, solution and chemical union, iron and carbon by the latter method, Mr. Van Dyke stated that when 18-8 alloy was austenitic it had its best resistance to corrosion. Before heat treatment, chrome-nickel steel crystal boundaries are fairly sharply defined. At certain temperatures, however, carbon comes out nearer the boundaries and combines with iron and the boundaries at the crystals are less clearly defined. Tensile strength is high at this point and the alloy is generally satisfactory for ordinary uses, but if subjected to severe corrosive influences electrolysis takes place. The bond between the crystals is destroyed and the metal weakened. When austenitic, the alloy is extremely ductile.

In heat treating chrome-nickel steel time is as important as the temperature. Carbon precipitation takes place between 950 and 1550 degrees Fahr. being most rapid about the middle of the range. The carbon content and the chrome and nickel content influence the action. Carbon precipitation slowly disappears at higher temperatures, gradually at 1700 degrees Fahr. and more rapidly above that point. With carbon in solution in iron, the danger zone in heat treatment is cooling. Here again the time element is important, differing with the type of stock being worked.

Mr. VanDyke mentioned large tanks as offering a difficult problem and stated frankly that some fabricating problems are difficult or cannot be met. It is generally admitted as the result of extensive tests that in low-carbon material fatigue resistance is lower.

Difficult To Machine

The 18-8 alloy is much more difficult to machine than some other alloys, but the tensile strength is higher. This, according to Mr. VanDyke, allows the use of lighter gage material, such as sheets, with a compensating volume of power comparing favorably with an easier machined alloy of heavier gage. In machining slow speeds are necessary and cuts should be taken well under the surface. The same applies to drilling. Once started, the machining operation should be continued without stop. The alloy must be cut all the way.

In gas welding accurate regulators are of utmost importance. Alloy content is also a factor and if the flame is not controlled accurately the process will take out some of the alloy and an excess of oxygen will burn out the chrome. Excess of acetylene gas will most probably absorb carbon. A compromise suggested by Mr. VanDyke is a neutral mixture with a slight, but extremely slight, excess of acetylene gas.

In arc welding successful procedure is largely a problem for the individual welder. In shearing and punching, it is important that tools be adjusted to a close clearance and it should always be remembered that 18-8 is an extremely tough metal.

Mr. VanDyke warned against fixed dependence on tabulated data in the use of metals at high temperatures and in tests for tensile strength stressed the importance of a "rapid" pull in attempts to reach an intelligent conclusion, pointing to the action of pitch and a candle under heat with a tendency to flow and bend, but break under a sharp blow.

A chart shown by the speaker revealed that chrome-nickel steel tested for tensile strength at 1500 degrees Fahr. registers roughly 43,500 pounds per square inch, as compared with 6000 pounds for mild steel at the same temperature. Charts comparing creep test values also were shown, giving 1 per cent elongation in 100,000 hours for both mild steel and chrome-nickel steel, although it was pointed out that commercial loads being much heavier and at often high temperatures bring more immediate results as to stretch and the effect and possibillity of scaling.

In addition to stressing the popularity of chrome-nickel steels, Mr. VanDyke pointed out this alloy automatically overcomes some problems confronted in the production of straight chrome steels. He predicted a bright future for 18 per cent chrome steel with the likelihood of considerable tonnage developing for this alloy in bridges and other heavier structures, despite high first cost. A 26-30 per cent chrome steel is especially favored for high temperature work and for its resistance to oxidation and scale.

Increased alloy content has a definite effect on the life of the metal, according to tests for disintegration in a hot solution of copper sulphate and sulphuric acid after 500 hours in a furnace at 1200 degrees Fahr. Apparently the carbon content does not affect the failure in the same proportion, as does that of the alloy.

Alloy Content Affects Failure

One specimen with 0.08 per cent carbon with a total alloy content of 30.52 per cent failed in 250 hours. Another with 0.075 per cent carbon and 27.28 per cent total alloy failed in 15 hours. Raising the carbon to 0.11 per cent and lowering the alloy content to 26.95 per cent brought a failure in 5½ hours. Still increasing the carbon content to 0.14 per cent and again lifting the alloy content to 30.01 per cent resulted in a failure only after 360 hours, indicating that the alloy content affects the disintegration of the metal proportionately more than the carbon content.

Short-time tests also indicate that the life of the metal is affected by keeping the carbon content fairly constant and increasing the alloy content. Specimens tested after 1 hour in the furnace at 1200 degrees Fahr. indicated that while carbon may have some effect on the failure, the alloy has more. One with 0.096 per cent carbon and total alloy of 28.91 per cent failed in 984 hours. Another with 0.090 per cent carbon, but with 25.14 per cent alloy failed in 14½ hours, the same hot solution being used as in the long-period

tests. With a total alloy content of 27.44 per cent and carbon 0.06 per cent the specimen went 1000 hours and was still undamaged, indicating that for the 18-8 alloy carbon content of 0.06 per cent appears most practical. Failure came in 384 hours on a specimen with 26.00 per cent alloy and 0.066 per cent carbon.

Solutions used in certain branches of the paper industry, 1 per cent sodium sulphate and 3 per cent free sulphurous acid were utilized to test corrosion on various analyses with a temperature of 300 to 320 degrees Fahr. with 50 to 55 pounds per square inch pressure over a duration of 212 hours. One specimen containing 0.13 per cent carbon, 17.30 per cent chromium and 8.39 per cent nickel showed a loss of 0.604 milligrams per square inch per hour. Another with 2 per cent molybdenum, 0.12 per cent carbon, 17.74 per cent chrome and 8.30 per cent nickel lost 0.382 milligrams per square inch per hour. Tests indicated that resistance is more or less the measure of the amount of iron left in the metal as compared with the alloy.

Mr. Van Dyke made the same address before some 500 steel consumers in the Philadelphia district, the meeting being held in the Ryerson plant in that cty. As was the case in Jersey City, demonstration booths were operated to show the processes of gas and electric welding, soldering, grinding, and polishing of corrosion-resistng steels. Manufactured articles, made of Allegheny metal, also were displayed.

Towers for George Washington Bridge Require 40,000 Tons of Steel

FABRICATING and erecting steel work for the George Washington suspension bridge, spanning the Hudson river between Fort Lee, N. J., and New York, constituted one of the most complex jobs ever accomplished in modern bridge engineering. Completed, the bridge was opened to traffic on Oct. 24.

Each tower, as shown in the accompanying illustration, has two legs with each leg comprised of eight steel columns almost 600 feet high and these columns are made up of 12 sections approximately 50 feet high. Total weight of a single tower is 20,106 tons, equivalent to the registered tonnage of a moderate-sized ocean liner. The weight of the two towers and the 19,188 tons of steel in the spans totals 59,400 tons.

The weight of these steel parts is significant chiefly in indicating the size of the accomplishment. The structure as a whole and individual members were designed so that each member would carry its load without unnecessary material, in fact, design of the bridge by the Port of New York Authority has attracted attention for its achievement in combining maximum strength with remarkable economy of materials.

No statement of the height of the towers is exact unless temperature is specified. At 70 degrees Fahr. the towers are 593 feet high, but this height varies 5½ inches between 10 and 90 degrees Fahr. They are constructed to carry a total vertical load per tower of 140,000 tons.

The size of the job is indicated by the fact that workmen for the McClintic-Marshall Corp., Bethlehem, Pa., which furnished and erected the steel, drove on the site 950,000 rivets in the towers and 312,500 rivets in the spans, a total of 1,262,500 rivets, or about 5000 a day. The first of the steel for the towers was set on Aug. 6, 1928, and the towers were turned over to the cable contractor on June 19, 1929.

One of the initial problems in connection with the structure was the handling of materials. On the Jersey side the river was deep enough for carfloats with material to be moored adjacent to that tower, but on the New York side the tower foundation was located on Jeffries Hook and it was necessary to build a special dock where material for the towers could be unloaded.

This dock was built of five large cribs or boxes filled with rocks; the boxes then were fastened together with heavy timbers and the whole was floored with heavy planks. The dock was tied to the tower foundation and anchors were put into the rocks along the shore to keep the structure from sliding down the steep shelving shore on which it rested.

LOOKING through one of the towers of the new George Washington bridge crossing the Hudson river between Fort Lee, N. J., and New York. The first cable barge is seen crossing the river. Each tower required 20,106 tons of structural steelwork

Built up in Sections

The next step was the placing of 32 steel pedestals on the concrete, eight pedestals for each tower leg, one for each column of steel in the leg. The two legs of each tower were built up section by section. Each section was like a slatted cube with each of the sides made up of a row of four columns, the rows being braced by horizontal and diagonal cross pieces. Briefly, each section when finished was a cube of steel trestlework approximately 50 feet high.

Building the bottom cube of each leg was a relatively simple matter, but as each succeeding section was being constructed the problem of lifting the material had to be met. This problem was solved by building a temporary platform between the two legs and placing on it two stiff-leg derricks shaped like large tripods. Each derrick had a swinging boom with block and tackle, the lifting power being supplied by two 150-horsepower electric motors operating seven cable drums.

These motors were installed on the ground 150 feet landward from the center line of the tower. The operator received his signals from the raising gang by white and red signal lights telling him when to start and stop. As soon as a pair of sections was completed, the center platform was hoisted to the new level and the process repeated.

Mechanical Engineers Plan Annual Meeting Program

Metal rolling, steel mill bearings, mill lubrication, materials handling, metal cutting and machine shop practice are among the important topics to be discussed during the annual meeting of the American Society of Mechanical Engineers in the Engineering Societies building, New York, Nov. 30- Dec. 4.

Special features of the four-day program include the annual address of President Roy V. Wright; awarding of honorary membership to Dr. Palmer C. Ricketts, president, Rensselaer Polytechnic institute; and presentation of John Scott medals to Willis H. Carrier, A. H. Emery, H. T. Herr and Albert Kingsbury.

Two Annual Lectures

For the first time in several years both the Towne and Thurston lectures will be presented at the annual meeting. The Towne lecture, which will deal with the relationship between economics and engineering, will be given by Prof. W. B. Donham, dean of the graduate school of business administration, Harvard university. The Thurston lecture will be delivered by Dr. Edward L. Thorndike, professor of education, Teachers college, Columbia university, his subject being "Psychology and Engineering."

One general session will be devoted to the report of the committee on the "Economic Status of the Engineer," with a definite program for the society to be submitted for discussion.

Among papers to be presented at the technical sessions are the following:

Monday, Nov. 10

MORNING

Machine Shop Practice and Applied Mechanics

"Improved Device for Recording Instantaneous Tool Pressures in Machinability Studies," by O. F. Gechter and H. R. Laird.

"Photoelastic Developments." 1. "Kinematography in Photoelasticity," by Max M. Frocht. 2. "Photoelastic Study of Shearing Stress in Keys and Keyways," by A. G. Solakian and George B. Karelitz. 3. "Celluloid as a Medium for Photoelastic Investigation," by R. H. G. Edmonds and B. T. McMinn.

Materials Handling

"Rustless Steel Conveyors — Their Availability, Application and Use," by Nixon W. Elmer.

"Application and Design of the Floating Drive for Conveyors," by N. H. Preble.

"Improved Material Handling Methods in a Container Plant," by H. N. Macdonald.

"Progress Report of Materials Handling Division," by F. D. Campbell.

AFTERNOON

Metal Cutting

"Elements of Milling," by O. W. Boston and Charles E. Kraus.

"Tungsten Carbide and Other Hard Cutting Materials, Progress Report No. 3 of Subcommittee on Metal Cutting Materials," by Coleman Sellers 3rd.

Tuesday, Dec. 1

MORNING

Casting and Machine Design

"Machine Design Management," by J. L. Allen.

"Correlation of Design and Foundry," by Alex Taub.

"Progress Report of Machine Shop Practice Division," by C. deZafra.

Lubrication Research

"Optimum Conditions in Journal Bearings," by Albert Kingsbury.

"Pressure Distribution in the Oil Films of Journal Bearings," by S. A. and T. R. McKee.

"Oil Film Pressures in an End Lubricated Sleeve Bearing," by Louis J. Bradford.

Wednesday, Dec. 2

AFTERNOON

Lubricating Engineering

"Modern Oil Lubrication Methods as Applied to Rolling Mill Equipment," by J. A. Merrill and E. M. May.

"Oil Requirements for Modern Rolling Mill Circulating Systems," by C. M. Larson.

Thursday, Dec. 3

MORNING

Symposium on Steel Mill Bearings

"Straight Copper-Lead Alloys Versus Solid-Solution Bronzes for Heavy-Duty Bearings," by F. R. Hensel and L. M. Tichvinsky.

"Millwright Bearings for Roll Necks of Medium-Sized Rolling Mills," by K. W. Atwater.

"Water Lubricated Soft Rubber Bearings," by W. F. Busse and W. H. Denton.

"Application of Celoron Bearings to Roll Necks," by Arthur J. Schmitt.

"Application of Tapered Roller Bearings in Merchant Bar Mills," by S. M. Weckstein.

Metal Rolling

"Recent Developments in Merchant Bar Mills," by G. L. Fisk.

"Progress Report of Iron and Steel Division," by Harry A. Deuel.

"Foreign Supplement to Progress Report," by W. Trinks.

Acetylene Association To Feature Weld Testing

A comprehensive discussion of methods for testing oxyacetylene welded joints will be a feature of the thirty-second annual convention of the International Acetylene association at the Congress hotel, Chicago, Nov. 11-13. H. L. Whittemore, chief of engineering, mechanics section, bureau of standards, Washington, will speak on the importance of tests to welders and to users and makers of welded products at the session on this subject, Wednesday evening.

Other speakers at this session will be Dr. S. Lewis Land, educational director, Heating and Piping Contractors' National association, New York, who will discuss "Today's Opportunities for Welding-Trained Men in the Metalworking Trade and Industries"; and Thomas Jones, superintendent of welding, Illinois Steel Co., Chicago, who will outline "Training Gas Welders for the Job."

Business prospects for 1932, and the future of welding will constitute the topic for the opening session on Wednesday afternoon. Use of the oxyacetylene process in transportation industries will be dealt with on Thursday morning when papers will be read on welding on the navy airship AKRON, scrapping railroad cars on a production basis with blowpipes, and present practices in rail bonding.

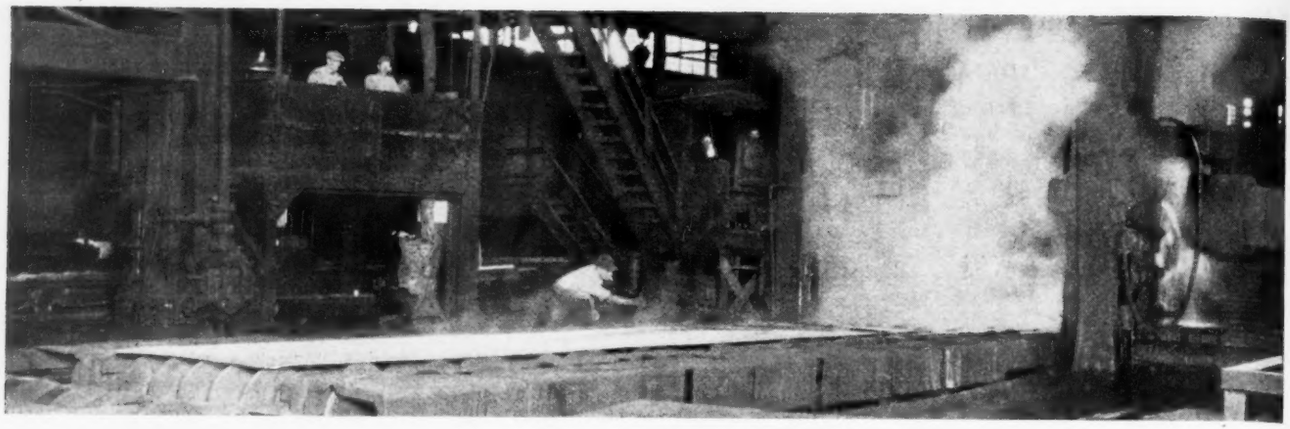
Thursday afternoon's program will deal with welded heating, water and air-conditioning systems; overland oil and gas lines; and the use of special fittings for welded installations. A session on the chemical industry on Friday morning will be confined to high - pressure, high - temperature chemical piping; methods of welding the new corrosion-resisting alloys; and welded power piping. Charles Gorton, chairman of the Uniform Boiler Law society, New York, will explain the use of gas welding under the revised A.S.M.E. boiler code.

Engineering education in welding is the subject for the concluding session on Friday afternoon. Speakers will be W. H. Mager, General Motors Institute of Technology, Detroit, and Prof. S. C. Hollister, Purdue university, Lafayette, Ind., the latter discussing "What the Welding Industry Must Do To Receive Engineering Acceptance More Rapidly." The oxyacetylene committee will present at this session its annual report describing the year's progress.

Ohio Engineers Hear Symposium on Ferroalloys

A symposium on ferroalloys, ores, fluxes and refractories was a feature of the fall meeting of the Ohio section of the American Institute of Mining and Metallurgical Engineers, held at Battelle Memorial institute, Columbus, O., Oct. 30. Jerome Strauss, Vanadium Corp. of America, Bridgeville, Pa., spoke on ferroalloys and the ores of silicon, chromium and vanadium. Molybdenum and tungsten were discussed by E. A. Lucas, Molybdenum Corp. of America, Pittsburgh; and refractories and fluxes were covered by Dr. G. A. Bole, engineering experiment station, Ohio State university, Columbus, O.

Moving pictures showing the manufacture and uses of steel plant refractories were presented by O. L. Day, Harbison Walker Refractories Co., Pittsburgh. The meeting was concluded with after dinner speeches by Dr. H. Foster Bain, secretary of the American Institute of Mining and Metallurgical Engineers, New York, and Dr. W. O. Hotchkiss, Michigan College of Mining and Technology, Houghton, Mich.



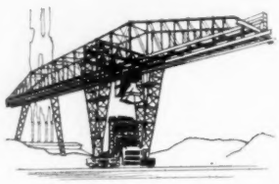
PROGRESS IN STEELMAKING

MANY hot blast stoves have been rebuilt recently which have several times the heating surface in the same shell as compared to former installations. Through the use of fillers and the zoning of the checker column, the middle and lower portions of the stove have been put to much more effective use in that through increased velocities in these sections, the heat transfer has been increased greatly and this has been further increased by the turbulence created through the offset filler brick.

♦ ♦ ♦

A small percentage of aluminum in the zinc bath has been found to give a tighter and thinner coating to sheets. The weight of the coating is increased by raising the temperature of the bath. A decided reduction in the formation of dross also is noticed. The sheets are dipped in a solution of zinc chloride and no salammoniac is required.

REMOVAL of rivets from platework requiring repair or replacement is being accomplished without damage to the plates or framework by the use of oxyacetylene cutting blowpipes. A slot in the rivet head is cut from the top of the button to the underside of the head similar to the slot in the head of a screw. As the cut nears the plate the nozzle is drawn back at least 1½ inches. As the bottom of the slot is reached and just before cutting starts at the plate surface, the nozzle is elevated to preheat the head. When the cut reaches the plate the nozzle is swung through a small arc to remove half of the head; it then is turned in the opposite direction to remove the remaining half. The gas scatters slightly thus preventing any break in the scale between the plate and rivet head. The button then is removed without disturbing the base metal.



AT A STACK in the Pittsburgh district a recently completed 15-ton ore bridge is moving a 1000 tons of ore an hour. A carload of ore containing 50 tons can be moved to the storage pile in three trips or in about 3 minutes. This speed is made possible by an electro pneumatic contactor-type of control.

♦ ♦ ♦

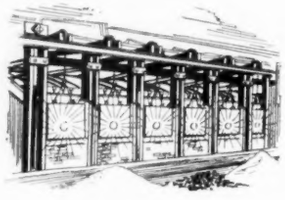
An entirely new feature has been incorporated in the design of a 275-ton open-hearth ladle crane. The main hoist reeving is so designed that the ropes are dead ended on the beam at four independent points. These points are so located that should there be a failure of any of the ropes, the equilibrium of the beam and ladle will be maintained and thus prevent spilling of the molten metal.

♦ ♦ ♦

A universal slabbing mill at a plant on the Ohio river is equipped with a drive which is affording efficient operating practice. The horizontal and vertical rolls utilize separate motors and the control is arranged so that the two motors accelerate and reverse simultaneously and maintain the desired speed ratio. The motor armatures are connected in parallel and receive their power from a motor-driven, induction flywheel set having three generators with their armatures connected in parallel.

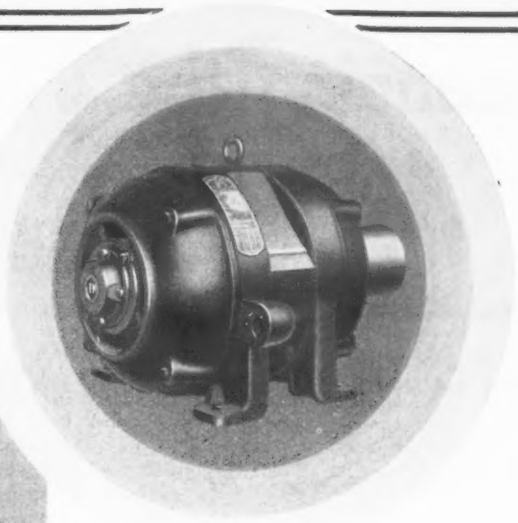
♦ ♦ ♦

Chatter marks on the surface of galvanized sheets have been eliminated by a sheetmaker who drives the entrance and exit rolls of three galvanizing pots independently and without gears by adjustable-speed motors synchronized by a special control. The motor speed can be varied over a wide range to permit rolls of any working diameter to be operated. With the former setup a single motor drove both sets of rolls through gearing and when resurfaced rolls were installed, it was necessary to change gears to obtain the correct speed relation. It frequently was necessary to grind the rolls to conform to the speed ratios of the gears in stock.



ENDEAVORING to reduce the cost of making alloy steel ingots by oreing the heats, omitting the cleaning of the steel with manganese and silicon pig iron and making the ferromanganese or ferrochrome addition in the ladle is not good practice, according to an open-hearth operator. He finds that invariably a portion of the chrome and manganese will be present as oxides and will cause dirty steel. Repeated tests show that the ferrochrome should be added to the bath about 25 minutes before tapping the furnace.

YES . . .



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POWER, PUMPING AND WEIGHING EQUIPMENT

Scanning the Technology of Steel

A Digest of Important Developments in Scientific Research, Engineering Progress and Operating Procedure Pertaining to the Production, Processing, Application and Performance of Steel

Grinding Carboloy Tools

Technique and care required in grinding of carboloy tools and results of tests to determine the correct wheel hardness, discussed in Carboloy, July-Sept. 1931, *p.* 9, 2 *pp.*, 1 *table.*

Checking or weakening of tools, in general, is caused by using wheels that are unsatisfactory as to cutting action which in turn causes excessive local heating. The present standard of grinding is approximately 0.020 to 0.035 gram of carboloy removed per 0.001-inch wheel wear with strength of carboloy between 200,000 to 250,000 pounds. For the average grinding wheel, speeds around 5000 to 6500 feet a minute have been found satisfactory. To obtain best results the following is suggested: that wheels be dressed frequently to keep them from glazing and heating the work, that care be used when clamping in vises and that no unnecessary tapping be done on the alloy or shank, that lighter feeds be used on the harder grades, that softer wheels be used for the harder grades, that if a coolant is used be sure it is a heavy flow, that no carboloy should be dipped in water for cooling purposes during grinding, that grinding should not be done continuously in one spot, and that the wheel spindle on any type of grinder be kept snug and free from vibration.

—STEEL, 11-2-31

Welding Strains

Prevention and removal of shrinkage strains and stresses resulting from welding, discussed by C. H. Jennings, in Journal of the American Welding Society, September 1931, *p.* 26, 2½ *pp.*, 1 *table*, 3 *illusts.*

Effect of three annealing temperatures and various soaking times on welding strains in welded structures are discussed. Annealing temperatures investigated were relatively low and did not cause grain refinement. The theory underlying the process of strain annealing is explained in detail. From the results of the test made by the author on low-carbon steel structures the following conclusions are cited: Welding strains and residual stresses can be reduced by annealing at temperatures below the critical point of the material. The effectiveness of annealing in reducing welding strains depends upon the annealing temperature and soaking time. In order to obtain a given minimum residual stress, the higher the annealing temperature, the shorter the soaking time required.

—STEEL, 11-2-31

Nitriding Practice

Details involved in nitriding steel, discussed in detail by Q. E. Harder, in Metals & Alloys, September 1931, *p.* 132, 10¾ *pp.*, 4 *tables*, 8 *illusts.*

The cost of producing hard, wear-resisting surfaces on steel by this process usually ranges from two to three times those of the case carburizing steels, depending upon whether the latter is an alloy or plain carbon steel. Experience has shown that nitriding produces an increase in size of the hardened part. The amount of this increase or growth is dependent upon the depth of case or upon the nitriding time and temperature. Protection against nitriding can be obtained by nickel plating and by coating with tin or lead-tin alloys. A nitrided surface can be removed by sand blasting or by heating to a high temperature. Compositions of principal nitriding steels are presented in tabular form. It generally is recognized that steels should be heat treated in rather definite ways previous to nitriding. In selecting a nitriding steel and in the nitriding operation consideration must be given to the possible properties of both core and case and to the requirements of the particular service. The hard nitrided case contributes comparatively little to the tensile strength, although it may have an important influence in increasing the endurance limit.

—STEEL, 11-2-31

Pulverized Coal Systems

Compilation of experience in accident prevention covering the safe operation of pulverized coal systems, discussed in National Safety News, October 1931, *p.* 71, 9¾ *pp.*, 10 *illusts.*

The article discusses the inherent hazards encountered in the operation of pulverized coal system and outlines the essential precautions that have proved practical in preventing accidents. The various steps through which the coal passes from the raw state to the furnace and other important phases of the subject are outlined and include unloading, storing, crushing, drying, magnetic separator, pulverizing, systems employed, transportation, storing, burning, extinguishing fires in systems and bins, building construction, plant cleanliness and general precautions.

—STEEL, 11-2-31

Galvanizing Mild Steel

Attack on mild steel in hot galvanizing, discussed by E. J. Daniels, at the annual meeting of the Institute of Metals, Zurich, Switzerland, Sept. 13-15.

Experiments have been carried out in the laboratory to determine the rates of attack on mild steel strip when immersed in different brands of zinc at various temperatures between 432 and 540 degrees Cent. The influence of small percentages of aluminum, antimony and tin has been investigated, and the action of alloys of zinc and cadmium has been studied. A full discussion is given of the application of the results obtained to the problem of galvanizing kettles, and the confirmatory data obtained by examination of the actual kettle are presented in support of the deductions arrived at from the laboratory experiments.

—STEEL, 11-2-31

Quenching Mediums

Quenching baths which give cooling rates intermediate between oil and water, discussed by T. E. Hamill, in Metal Progress, September 1931, *p.* 55, 4 *pp.*, 3 *illusts.*

Increasing the temperature of sodium silicate solutions from 20 to 80 degrees Cent. decreased the center cooling time in all concentrates investigated; the change is smaller between 20 and 50 degrees Cent. This behavior indicates that the quench can warm somewhat without making large changes in the properties of the quenched steel. Sodium silicate solutions have advantages and disadvantages. Among their advantages are their low cost and the fact that they do not readily corrode the steel. The chief disadvantages are the formation of a thin coating of silica on the surface of the quenched piece and the instability of some of the solutions.

—STEEL, 11-2-31

Machine Tools and Plant Equipment

«Without machine tools modern machinery could not be built.»
—Joseph W. Roe

Stabilization Plans Are Nothing New In the Machine Tool Industry

AS THE depression forces attention to plans for industrial stabilization, plans for unemployment insurance, etc., a common assumption seems to be that now is the first time that really serious attention has been given to matters of this sort. This is noticeable particularly in connection with current discussions of the Swope plan.

The fact is, that in the machine tool industry—reputed to be one of the most fluctuating, and made so by the common practice of purchasing its products only under pressure—thought always has been given to stabilization and to unemployment relief.

Most of the early machine tool builders primarily were manufacturers of firearms and were machine tool builders secondarily. Diversification of products, being inherent in their method of operating, can be called the original stabilization plan. It was common practice to transfer men back and forth between the firearms and machinery departments as occasion demanded. In spite of the dissimilarity between the two products, the old time all around mechanic was efficient on either one.

Evolution of Diversification

This same diversification plan was continued to some extent in connection with the building of sewing machines, textile machinery and certain other products quite as unrelated to machine tools. With the passing of the all around mechanic, however, it became increasingly difficult to transfer men back and forth between unrelated departments.

Another old-time practice, which lately has again been receiving attention of certain forward looking industrialists, is that of the seasonal shutdown, timed so as to permit industrial workmen to operate small farms. This actually was in vogue, particularly in smaller industrial communities, many years ago—in fact a large proportion of the workmen in some of the pioneer New England machine tool shops were combination farmer-mechanics.

The seasonal shutdown just mentioned usually coincided with the period of the year when water in the streams ran low—this condition reaching a climax during haying time. The early shops were built beside streams and were dependent wholly or in part upon direct water power. With ample water power prevailing early in the spring, in the late fall and usually throughout the winter, this plan worked out logically. In times of depression, which came from time to time then, as now, it assured food, shelter and fuel.

Instinctive Self-Protection

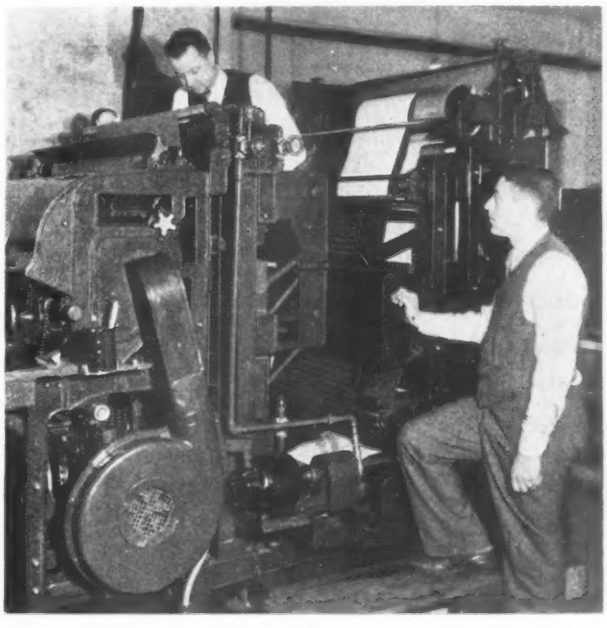
Of all balancing factors in the earlier days of the machine tool industry, however, by far the most significant was the general recognition on the part of individual workmen of the fluctuating character of the industry in which they were engaged. As intimated previously, many of them were owners of property in or near the community where they worked and where most of them intended to live out their lives. In boom times they instinctively took the initiative of saving against the slack period which invariably followed. The result was that in times of depression it was but seldom that the individual workman was unable to "see the thing through."

◆

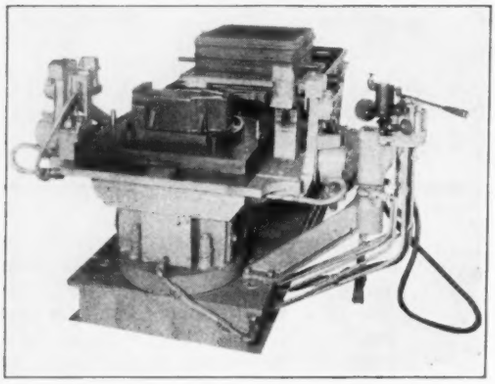
Develops New Process for Making Blueprints

C. F. Pease Co., 853 North Franklin street, Chicago, just has developed a new process for making blueprints and blueline prints, founded upon scientific fact and positive chemical action and reaction. The innovation is designed to operate exclusively on machines built by the company, particularly the newer types of continuous blueprinting equipment.

The new process prevents all bleeding and running of blues into whites, thus enabling the operator to make blueprints along with blueline prints. The attachment is



BLUE PRINTS and blueline prints now can be made by a new chemical process developed by the C. F. Pease Co. The process incorporates an attachment which is mounted directly at the rear of a blueprinting machine. The tank containing the chemical solution has a 10-gallon capacity



JAR, rollover, pattern drawing molding machine manufactured by Herman Pneumatic Machine Co. In this front view the pattern is shown in place. One of the features is the automatic arrangement for slow and fast pattern drawing

mounted directly at the rear of the blueprinting machine, as shown in the accompanying illustration, before the first water wash. Ordinarily only one plumbing connection is required.

Whenever it is desired to discontinue running blueprints or blueline prints in order to run negatives or brownline prints, the process attachment can be shut down and the machine operated in the ordinary manner with hypo developing solution using the revolving roll applicator.

Capacity of the chemical solution tank is ten gallons and when preparing solution for standard operation, chemical is mixed in quantity sufficient for only one day's run.

After preparing the solution the complete mixture is poured into the copper supply tank. Subsequently, the paper is threaded through the process attachment and operation is ready to begin. Tracings and negatives are fed into the blueprinting machine in the usual manner. When the first exposed prints near the top of the attachment, before entering the developer, the process pump at the right hand side of the attachment is started and valves of chemical delivery tubes are opened about half way, sufficient to insure a constant puddle of solution to cover two stainless steel rolls that revolve against the exposed paper.

◆

Rollover Molding Machine Designed for Speed

Herman Pneumatic Machine Co., Union Bank building, Pittsburgh, recently developed a new jar, rollover, pattern drawing molding machine which is designed to complete a cycle of operation in less than one minute. The unit, a front view of which is shown in the accompanying illustration, is being manufactured in three sizes, each having a rollover capacity of 750 pounds at 80 pounds air pressure.

Oil controls rolling over and drawing the pattern, an automatic feature being incorporated for slow and fast draw. The equalizer for taking up irregularities in the flask bottom board is a spring alignment device with automatic air lock. The turnover plate is equipped with vibrators having an automatic starting device. Pressure lubrication is provided to each moving part, with automatic lubrication included for such parts as the vibrator, jarring machine cylinder and control valve.

Moving Parts Are Protected

The machine also has been designed to prevent sand and dirt from coming into contact with the moving part. The jarring machine is compact and has a built-in foundation which is claimed to be shockless. This jarring unit and rollover device are assembled complete on a sub base. On the smaller size machine with the 20 x 24-inch turnover table the jarring machine plate table is 14 x 18 inches, maximum clearance between the uprights on the turnover plate is 32 inches, maximum overall length of flasks 31 inches and the maximum width of flasks 30 inches.

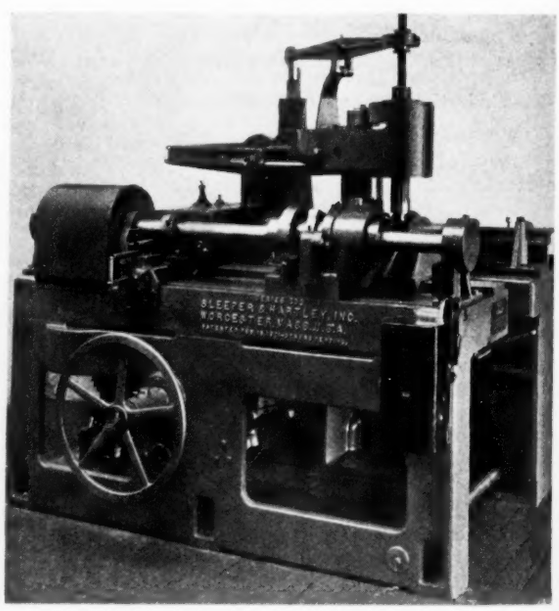
◆

Novel Design Features New Spring Winding Unit

Sleeper & Hartley Inc., 335 Chandler avenue, Worcester, Mass., has just shipped a newly developed torsion spring winding machine to the Russian soviet government. The unit, depicted in the accompanying illustration, coils wire ranging from size No. 14 to ¼-inch. In the smaller wire sizes it will produce springs up to 50 coils at 20 springs a minute, while in the larger sizes, 25 coils may be wound at the rate of 10 springs per minute. Regardless of wire size, projecting ends up to 7 and 12 inches long may be left on either or both ends of the spring body and in some cases these ends may be formed automatically as they come from the machine. Coils up to 4 inches, outside, can be wound.

A wide field of utility is embraced by this unit which should find use in many fields, particularly in the automotive and agricultural implement industries. Occupying but 6 inches by 4½ feet, the equipment effects a saving of floor space over some previous types. The machine has been designed to give exceptionally long life and accuracy of product, regardless of the number of coils of wire.

Nine major adjusting points assure careful and accurate control of

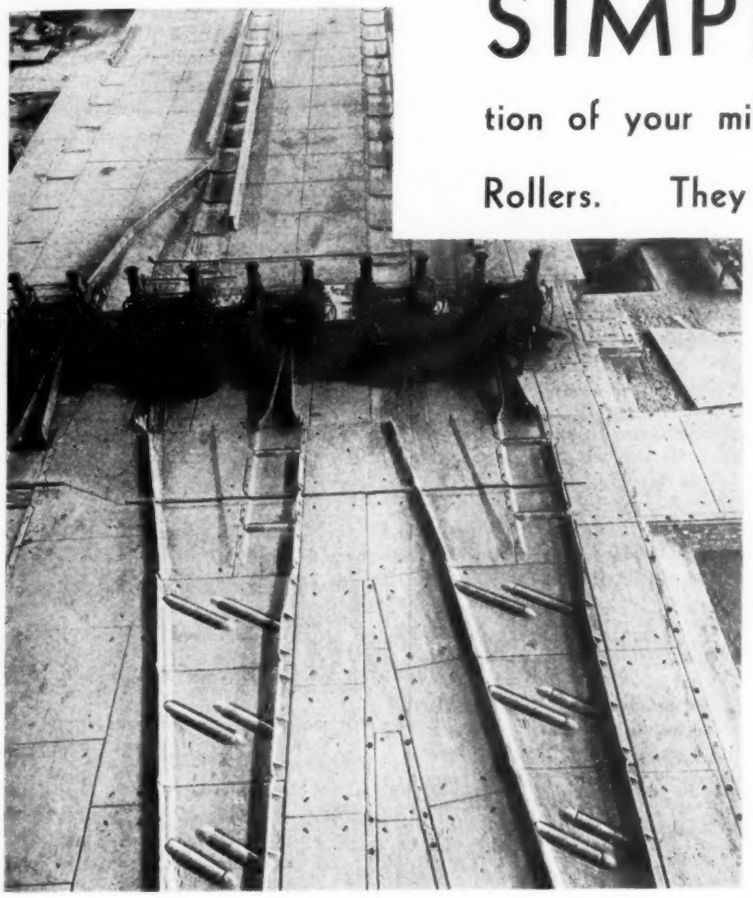


WIRE ranging in size from No. 14 to ¼-inch is coiled on the new torsion spring winding machine built by Sleeper & Hartley Inc. This unit is capable of producing springs of 50 coils each at the rate of 20 a minute and 10 per minute in larger sizes

SCHLOEMANN

"MOTOR-ROLLER"

(SCHULTE AND OTHER PATENTS)



SIMPLIFY construction of your mill-tables by using Motor-Rollers. They are entirely Self-Contained Units, having a stationary shaft and a minimum number of wearing parts, and ensure continuous operation of your tables at low maintenance cost.

MOTOR-ROLLERS are usually connected direct to the line and their rotation reversed by throwing them across the line; only extremely low and variable table speeds require frequency changers.

We Invite Your Request For Complete Information

SCHLOEMANN ENGINEERING COMPANY

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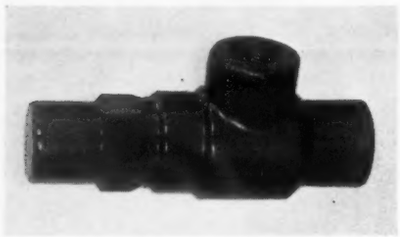


Pressure relief valve developed by Brown & Sharpe Mfg. Co.

any feature of the spring dimensions. Ease of operation is facilitated by the extensive use of antifriction bearings, each rotating part turning in or on ball or roller bearings. Power is furnished by a motor mounted between the frames, out of the way of dust and dirt.

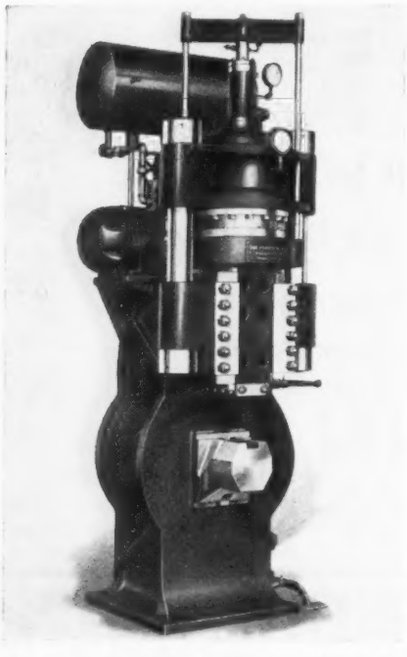
◆

New Relief Valve Permits Wide Pressure Range

Brown & Sharpe Mfg. Co., Providence, R. I., recently has added to its line of pumps and accessories a pressure relief valve designed primarily for use in connection with hydraulically operated machinery. The valve shown in the accompanying illustration, is particularly adapted for application on the Nos. 53 and 55 rotary geared pumps made by the company.

Features of the new valve are the large chamber which permits a ready escapement for the by-passed liquid, and the double spring arrangement. Quiet and efficient operation thus is obtained and when once the unit is installed and set for a predetermined pressure, no further attention is required.

Compression on the valve springs may be adjusted readily so that the device will operate at pressures ranging from 0 to 200 pounds per square inch. This adjustment is accomplished by removing the hexagon cap and turning the adjusting screw. Guides on the valve prevent fluttering and noisy operation. The valve is made to take 1-inch piping.



High-speed hydraulic press designed by French Oil Machinery Co.

◆

Improved Die Machine Has New Type of Chuck

Oliver Instrument Co., Adrian, Mich., recently announced a completely redesigned die making machine incorporating many improvements which have added much to its efficiency and ease of operation. The unit shown in the accompanying illustration is a motor-belt driven model arranged for bench mounting. Table of the new machine is of heavy construction, rigidly supported on two brackets and tilts in four directions. The working surface is accurately ground.

Filing and sawing are accomplished by the overarm, the upper end of the file or saw being clamped to a ram which reciprocates in bearings. The upper ram is of tool steel and is actuated through a bell crank lever and a heavy coil spring which provides a proper uniform tension on the saw. To remove the die for inspection, the overarm may be swung away from the file and brought back to the same position instantly when filing is ready to be resumed.

Chucks Are Lined Accurately

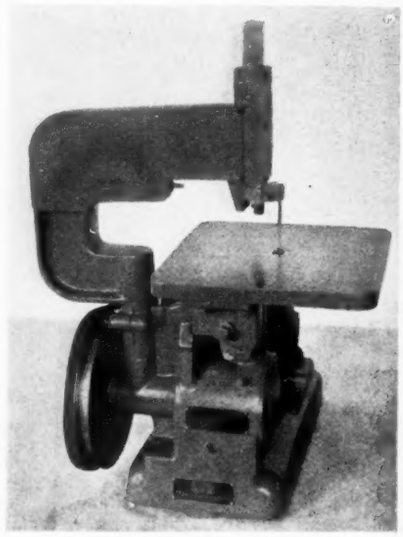
Holddown fingers are attached directly to the overarm and the working surface of the table is entirely clear. This machine is provided with an entirely new type of chuck. It consists of a solid and a moveable hardened jaw, these jaws being brought together by means of a screw. The chuck on the lower ram and the one on the upper ram are accurately in line. The same chuck is used for holding saws, files and lapping sticks. Motor-belt drive, direct motor drive or belt drive is available.

Many other useful features have been incorporated to increase the ease of handling this machine. It is rapid and accurate in both filing and sawing, and breaking of saws has been practically eliminated, it is claimed.

◆

New Press Is Capable of 35 Strokes Per Minute

French Oil Machinery Co., Piqua, O., has developed a high speed, self-contained, hydraulic press unit which is capable of operating continuously on a cycle speed of 35 strokes per minute. The accompanying illustration shows a 300-ton horning type. These presses also are made in the usual column types, as well as with the columns enclosed in large housings for gib guiding the moving platen. Hydraulic die cushions for drawing may be built into the units.



Die making machine manufactured by the Oliver Instrument Co.

Operation of the new presses is by foot pedal or hand lever, the hand lever also acting as an emergency release at any part of the cycle by motion of the lever upward. The unit can be set to operate at any desired stroke or pressure, and when this pressure is reached the press may be regulated to instantaneously reverse to open position; or it can be set to hold the desired pressure for any period of time and then automatically return to open position.

With this patented operation high speed is obtainable in a self-contained unit. Due to the extreme simplicity of the hydraulic system and control, the presses are dependable and fast. Fluid lines are carefully assembled and free from leakage.

Confidence Gains Tangible Support

Heavier Automotive Demands Assured This Month—Structural Awards Larger — Operations To Step Up — Raw Material Prices Easier

GRADUAL but unmistakable progress is being made in the restoration of confidence in the steel industry. Sentiment has consistently improved in the past several weeks; is finding further tangible backing in actual business, and more so in prospects for the remainder of the year.

Automotive buying is coming along; structural steel requirements are gaining moderately; railroad orders are fairly good. There seems to be no tendency on the part of consumers at present to increase purchases merely because of the imminence of steel freight advances. Steelworks operations are steadier, and for this week indicate a slight betterment. Softness in raw material prices is more pronounced.

A good deal of the support to improved sentiment originates with the automotive industry, which beginning about the middle of November unquestionably will absorb a much larger volume of steel. Incidentally, as a reflection of reviving demand from this source, weakness has developed in the price of hot-rolled strip.

Chrysler plans shortly to go on a four-day week, and continue on that basis through December and January, employing as many men as in midsummer, even if cars are stored. Ford has scheduled production of 65,000 by Jan. 1, and 70,000 in January. Chevrolet in some departments is producing for 1932 assembly, and will be operating at a much better rate by Nov. 15. Willys-Overland is stepping up output.

Railroad purchases, less impressive than in the preceding week, nevertheless are fairly numerous. Supplementing recent rail orders, the Atlantic Coast line has placed 5600 tons of track fastenings; and the Chesapeake & Ohio, 9000 tons. Northern Pacific closed for 4000 tons of rails with two mills, while Western Maryland purchased an additional 1000 tons of rails and 335 tons of track fastenings. October freight car awards totaled 780, compared with 503 in September, and 4116 in October last year.

Structural shape awards for the week, amounting to 22,614 tons, and topped with 7400 tons for New York's west side elevated highway, are the best in several weeks. The Stanolind Pipe Line Co. has purchased 5000 tons of steel pipe from several makers. Larger purchases of cast iron pipe in the East during the week aggregated 5000 tons. Fort Wayne, Ind., is to buy 25,000 tons of steel or cast iron pipe shortly.

In plates, 5000 tons are to be placed soon for Colombian Steamship vessels to be built by the Newport News Shipbuilding & Dry Dock Co. In tin plate, production has been stepped up for the usual year-end anticipations of early 1932 shipment.

Steelmaking operations advanced fractionally last week to 28 per cent, with a further gain to almost 30 per cent indicated for this week. Youngstown and Pittsburgh are chiefly responsible for this lift, the former spurred by the improved automotive situation and the latter affected by the scheduling of structural material for the Radio City project in New York. Chicago, eastern Pennsylvania and Buffalo also are operating better this week.

Prices of hot strip have failed to hold the advance of 60 days ago. On heavy finished steel, large buyers continue to obtain concessions, but small consumers are less inclined to question the 1.60c, base, price than they did recently. Price softness is most noticeable in raw materials, especially pig iron. Foundry iron has been reduced $1 a ton in eastern Pennsylvania.

STEEL's iron and steel composite is down 4 cents to $30.64, and the scrap composite 25 cents to $8.25. The finished steel composite remains $48.22.

Composite Market Averages

	Oct. 31	Oct. 24	One Month Ago (Sept., 1931)	Three Months Ago (July, 1931)	One Year Ago (Oct., 1930)	Ten Years Ago (Oct., 1921)
Iron and Steel Composite	$30.64	$30.68	$31.03	$31.05	$32.26	$35.46
Finished Steel Composite	48.22	48.22	48.72	48.68	50.13	54.75
Steelworks Scrap Composite	8.25	8.50	8.82	8.70	12.32	11.89

Iron and Steel Composite:—Pig iron, billets, slabs, sheet bars, wire rods, pipe, tin plate, nails, sheets, plates, shapes, bars. **Finished Steel Composite**:—Plates, shapes, bars, sheets, hot strip, nails, tin plate, pipe. **Steelworks Scrap Composite**:—Melting steel, compressed sheets.

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for Current Week, Last Month, Three Months and One Year Ago

	Oct. 31, 1931	Sept., 1931	July, 1931	Oct., 1930
PIG IRON				
Bessemer, del. Pittsburgh	$17.76	18.26	18.26	19.36
Basic, valley	$ 15.00	17.00	17.00	17.00
Basic, eastern del. eastern Pa.	16.00	16.50	16.75	17.50
No. 2 foundry, del. Pittsburgh	17.76	18.26	18.26	18.46
No. 2 foundry, Chicago	17.00	17.50	17.50	17.50
*Southern No. 2, Birmingham	12.00	12.00	12.00	14.00
**No. 2X, Virginia furnace	18.00	18.00	18.25	18.25
**No. 2X, Eastern del., Phila.	16.26	17.26	17.51	19.26
Malleable, valley	16.50	17.00	17.00	17.80
Malleable, Chicago	17.00	17.50	17.50	17.50
Lake Superior, charcoal, del. Chi.	25.04	25.54	27.04	27.04
Gray forge, del. Pittsburgh	17.13	17.63	17.63	17.83
Ferromanganese, del. Pittsburgh	89.79	89.79	89.79	103.79

*1.75 to 2.25 silicon. For local delivery. Northern shipments based on $11, Birmingham. **2.25 to 2.75 silicon.

COKE				
Connellsville furnace, ovens	2.40	2.40	2.40	2.60
Connellsville foundry, ovens	3.25	3.25	3.25	3.50
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngs.	29.00	29.00	29.00	31.00
Sheet bars, open-hearth, Pitts.	29.00	29.00	29.00	31.00
Billets, open-hearth, Pittsburgh	29.00	29.00	29.00	31.00
Wire rods, Pittsburgh	35.00	35.00	35.00	36.00

	Oct. 31, 1931	Sept., 1931	July, 1931	Oct., 1930
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.60	1.60	1.60	1.60
Steel bars, Chicago	1.70	1.70	1.70	1.70
Steel bars, Philadelphia	1.89	1.89	1.89	1.89
Iron bars, Chicago	1.65	1.70	1.70	1.75
Shapes, Pittsburgh	1.60	1.60	1.60	1.60
Shapes, Philadelphia	1.76	1.76	1.76	1.76
Shapes, Chicago	1.70	1.70	1.70	1.70
Tank plates, Pittsburgh	1.60	1.60	1.60	1.60
Tank plates, Philadelphia	1.80½	1.80½	1.80½	1.80½
Tank plates, Chicago	1.70	1.70	1.70	1.70
Sheets, No. 10 blue anneal., Pitts.	1.85	1.85	1.85	1.95
†Sheets, No. 24, hot, ann., Pitts.	2.40	2.40	2.40	2.40
Sheets, No. 24, galvan., Pitts.	2.90	2.90	2.90	3.00
Sheets, No. 10 blue anneal., Chi.	2.00	2.00	2.00	2.15
†Sheets, No. 24, hot, ann., Chi.	2.55	2.55	2.55	2.60
Sheets, No. 24 galvan., Chi.	3.05	3.05	3.00	3.20
Plain wire, Pittsburgh	2.20	2.20	2.20	2.30
Wire nails, Pittsburgh	1.90	1.90	1.85	2.00
Tin plate, per base box, Pitts.	4.75	5.00	5.00	5.00

†Comparisons are with old classification No. 24 black sheets.

SCRAP				
Heavy melting steel, Pitts.	$10.25	10.80	10.50	14.80
Heavy melting steel, eastern Pa.	8.00	8.50	8.75	12.00
Heavy melting steel, Chicago	7.75	7.95	8.50	11.55
No. 1 wrought, eastern Pa.	9.50	9.75	9.75	14.25
No. 1 wrought, Chicago	8.00	8.00	8.25	10.95
Rails for rolling, Chicago	10.00	10.50	10.50	14.10

Sheets

Automotive Releases Expected To Be Heavier Later in November—New Business Light

SHEET PRICES, PAGE 67

Pittsburgh — Releases on recent automotive sheet orders are slow, and new business continues light. Improvement is looked for during November for new automobile models, but in view of recent delays on the part of some builders to complete plans it is thought likely that large tonnages will not be forthcoming until the middle or latter part of the month. Orders from other sheet consumers continue at their recent rate, and mill operations are unchanged at around 30 per cent. Consumers show little interest in buying beyond immediate requirements. Prices still show a fairly steady tone, with 2.40c continuing on hot-rolled annealed sheets; 2.90c on galavnized; 1.85c on blue annealed, and 3.10c on autobody.

New York—Some interest is noted in sheets for future delivery, but principal consumers in this district continue to cover only spot needs. Volume has shown little change and prices are steady.

Philadelphia—Sheet prices generally are steady. Riggs, Distler Co., Baltimore, subcontractor, has awarded 350 tons of galvanized sheets for the Pennsylvania railroad's Thirtieth street station here.

Cleveland—Shipping of automobile sheets to the Fisher Body Co. plant here again has been deferred, and from indications it will be this week or next before releases on material are issued. Isolated instances of price shading are noted in the Detroit district, though prices in this district are firm. October sales in total were under the average of the past three months. The metal furniture industry is operating with scarcely any backlog, though several makers in the Jamestown, N. Y., section are figuring on trim, partition, furniture and other hardware for the New York Radio City development.

Cincinnati — Sheet production schedules show little change. A review of order books for the last few months shows a decrease in demand from the South.

Chicago—Sheet mills are producing at 25 per cent for the district, a drop of about 5 points in the last week. Producers see little inducement to cut prices and virtually no orders as large as 100 tons appear. Operating costs are reported high because of the numerous small orders. No. 24 galvanized sheets are 3.00c, Gary and Indiana Harbor.

Birmingham, Ala.—Mill operations here continue slightly above 50 per cent. Pidgeon-Thomas Iron Co., Memphis, Tenn., has booked 415 tons of steel sheets, and the Gulf States Steel Co., Birmingham, 80 tons, both for the United States engineer at Memphis, Tenn.

Youngstown, O.—Rather limited releases for both full-finished and common sheets continue to come to mills from automobile partsmakers, especially those serving two low-price cars. For the first time in many months, galvanized sheets appear firm at 2.90c, Pittsburgh. An encouraging volume of new business is coming to galvanizers from stampers. There also is better demand for electrical sheets.

Iron Ore Shipments Under 25,000,000 Tons

Iron Ore Prices, Page 77

Cleveland—Lake shipments of iron ore in the first 27 days of October amounted to 2,729,336 tons, giving a total of 22,682,104 tons for the season up to Oct. 28. Shipments are to end by Nov. 15, and it is unlikely that the total movement this year will reach 25,000,000 tons.

Current Finished Steel Prices

Prices in cents per pound unless otherwise stated

Steel Sheets

HOT ROLLED No. 10

Pittsburgh base	1.70c
Gary, Ind. Harbor, base	1.80c
Chicago, del.	1.85c
Philadelphia, del.	1.99c
Birmingham, base	1.85c

BLUE ANNEALED No. 9-10

Pittsburgh, base	1.85c
Chicago, district mills	1.95c
Chicago, delivered	2.00c
Philadelphia, del.	2.14c
St. Louis, delivered	2.20½c
Birmingham	2.00c to 2.05c
San Francisco, c.i.f.	2.33c

HOT ROLLED ANNEALED No. 24

Pittsburgh, base	2.40c
Gary, Ind. Harbor, base	2.50c
Chicago, del.	2.55c
Philadelphia, del.	2.69c
Birmingham, base	2.55c
St. Louis, del.	2.75½c

GALVANIZED No. 24

Pittsburgh, base	2.90c
Gary, Ind. Harbor, base	3.00c
Chicago, del.	3.05c
Philadelphia, base	3.19c
Birmingham, base	3.05c
St. Louis, del.	3.25½c

AUTOMOBILE No. 20

Pittsburgh, base	3.10c

FURNITURE

Pitts., No. 10 heavy	2.75c
Pitts., No. 20 light	3.35c

TIN MILL BLACK No. 28

Pittsburgh, base	2.65c
Gary base	2.75c
St. Louis, del.	3.00½c

HEAVY COLD ROLLED No. 10

Pittsburgh base	2.35c
Gary, Ind. Harbor, base	2.45c
Chicago, del.	2.50c
Philadelphia, del.	2.64c
St. Louis, del.	2.70½c

COLD ROLLED No. 20

Pittsburgh, base	2.95c
Gary, Ind. Harbor, base	3.05c
Chicago, del.	3.10c
Philadelphia, del.	3.24c
St. Louis, del.	3.30½c

Tin and Terne Plate

Prices per 100 pound box Pittsburgh

Tin plate, coke base	$4.75
Gary, Ind., base 10 cents higher.	
Long ternes, 24, unassorted, lb.	3.15c

Wire Products

(To Jobbers-Merchant Trade)

F.o.b. mills, 100 lb. keg

Standard wire nails	$1.90 and 2.00
Cement coated nails	1.90 and 2.00
Galvanized nails	3.90 and 4.00

(Per pound)

Polished staples	2.35c and 2.45c
Galvanized staples	2.60c and 2.70c
Barbed wire, gal.	2.55c and 2.65c
Annealed fence wire	2.35c and 2.45c
Galvanized wire	2.80c and 2.90c
Woven wire fencing, (9-11 ga.)	$55.00 and $60.00
(12½ ga. and lighter)	60.00 and 65.00

(To Manufacturing Trade)

Plain wire, 6-9 gage	2.20c
Spring wire	3.20c

Joliet, DeKalb, Waukegan, Ill., Anderson, Ind., Chicago, $1 over Pitts.-Cleve.; Duluth and Worcester, Mass., $2 higher; Fairfield, Ala., $3 higher.

Rivets

Struc., c.l., Pitts.-Cleve.	2.25c
Struc., c.l., Chicago	2.35c
7/16-in. smaller, Pitts.	70, 10 and 5 off
Chicago, Cleve.	70, 10 and 5 off

Steel Plates

Pittsburgh, base	1.60c
Philadelphia, del.	1.80½c
New York, delivered	1.88c
Boston, delivered	2.00c
Chicago, base	1.60c
Cleveland, base, for railroads	1.65c
Lackawanna, N. Y., base	1.70c
Birmingham, base	1.75c to 1.80c
Coatesville, Pa., base	1.70c
Pacific Coast, c.i.f.	1.85c to 1.95c
St. Louis, del.	1.95½c

Structural Shapes

Pittsburgh, base	1.60c
Philadelphia, del.	1.71c to 1.76c
New York, del.	1.85½c
Boston, del.	1.98½c
Chicago, base	1.70c
Cleveland, delivered	1.78½c
Lackawanna, N. Y., base	1.70c
Birmingham base	1.75c to 1.80c
Pacific Coast, c.i.f.	2.05c to 2.15c

Bars

SOFT STEEL

Pittsburgh, base	1.60c
Chicago, base	1.70c
Birmingham base	1.75c to 1.80c
Lackawanna, N. Y., base	1.70c
Pacific Coast, c.i.f.	2.05c
Cleveland, base, local del.	1.65c
Cleveland base, out. del.	1.65c
Philadelphia, del.	1.89c
New York, del.	1.93c
Boston, del.	2.00c
Pittsburgh, cold finish	1.85c
Pittsburgh, forg. qual.	1.90c

RAIL STEEL

Chicago Heights	1.50c to 1.60c
Eastern mills	1.30c
Pittsburgh	1.30c to 1.35c

IRON

Chicago, base	1.65c
New York, delivered	1.88c to 1.98c
Philadelphia, delivered	1.84c to 1.94c
Pittsburgh, refined	2.70c to 4.20c

REINFORCING

Pitts., billet cut lengths	1.75c
Stock lengths, mill	1.60c
Chi., billet	1.50c to 1.60c
Chi., rail steel	1.30c to 1.50c
Chi., rail steel, bridge and culvert	1.40c to 1.50c
Philadelphia, cut lengths	2.04c
Cleveland, cut lengths	1.75c

Cold Finished Bars, Shafting

Base, Pittsburgh, Chicago, Buffalo and Cleveland	2.10c
Shafting, turned and ground, Pittsburgh, Cumberland, Md.	2.45c to 2.90c

Corrosion, Heat Resist. Alloys

Base, Pittsburgh

18 per cent chrome, 8 per cent nickel Sheets, 35c; plates, 31c; bars, 28c.

	A	B	C	D
Bars	19c	20.5c	23c	28c
Plates	21c	22.5c	25c	30c
Sheets	26c	27.5c	30c	35c
Hot strip	19c	20.5c	23c	28c
Cold strip	25c	26.5c	32c	37c

Carbon 0.12 and under; no nickel. A has chrome 15% and under, B over 15/18% inc., C over 18/23% inc., D over 23/30%.

Wrought Washers

Carloads, Pitts. dist.	$6.50 to $6.75 off
Carloads, Chicago dist.	7.00 to 7.45 off

Alloy Steel

Hot Rolled—F.o.b. Mills

Alloy Quality Bars, 2.65c, mill

S.A.E.	Alloy Diff.	S.A.E.	Alloy Diff.
2000	0.25	1.25-1.75 Ni.	1.05
2100	0.55	5100 .80 - 1.10 Cr.	0.45
2300	1.50	51.00 Cr. spring	0.20
2500	2.25	6100 bars	1.20
3100	0.55	6100 Spring	0.95
3200	1.35	Cr., Ni., Van.	1.50
3300	3.80	Carbon Van.	0.95
3400	3.80	9250 (flats)	0.25
4100 .15 to .25 Mo.	0.50	9250 (rds.,sq.)	0.50
4600 .20 to .30 Mo.			

Strip, Hoops Bands

Hot strip, to 6-in., Pitts.	1.60c to 1.65c
Do, 6 1/16 to 24-in., Pitts.	1.50c to 1.55c
Hot strip, bands 6 in. and under, Chicago	1.75c
Do, 6 1/16 to 24 in.	1.65c
Cooperage hoop, Pitts.	1.70c to 1.80c
Do., Chicago	1.85c to 1.95c
Cold rolled strip, Pitts., Cleveland	2.15c
Worcester, 3 tons, over	2.30c

Rails, Track Material

Standard bess. and open-hearth rails, mill	$43.00
Relay rails, Pitts., 20 to 45 lbs.	$22.00 to $26.00
50 to 75	20.00 to 24.00
80 to 100	24.00 to 27.00
Light rails, 25-45, mills	$34.00
Light rails, Chicago	$36.00
Angle bars, Chi. base	2.75c
Spikes, railroad, mills	2.70c
Spikes, railroad, 7/16-in. and smaller, Pitts.	2.70c
Spikes boat, barge, Pitts.	2.90c
Spikes, railroad, Chi.	2.80c
Track bolts, Pitts., steam roads	3.80c
Do, standard, jobbers	73 off list
Track bolts, Chicago	3.80c
Tie plate, mills	$39.00

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chi. Discounts to legitimate jobbing or large consuming trade for full-case lots apply to May 10, 1930, lists.

CARRIAGE BOLTS

All sizes, cut thread ..... 73 and 10 off
Rolled thread ⅜ x 6 and smaller take 10 per cent lower list.
Eagle list ..... 73 and 10 off

MACHINE BOLTS

All sizes, cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts ..... 73 and 10 off
Tire bolts ..... 60, 10 and 10 off
Stove bolts, 80, 10, 10, 5 off in pkgs.; 80, 10, 5, 2½ off in bulk.
Rolled thread machine bolts, ⅜ x 6 and smaller take 10 per cent lower list.

NUTS

Semifinished ..... 73 and 10 off

HEXAGON CAP SCREWS

Milled ..... 80-10-10-5 off
Upset 1 in. diam. and smaller ..... 85-10 off

SQUARE HEAD SET SCREWS

Milled ..... 80-5 off
Upset 1 in. and smaller ..... 80-10-5 off
Upset, larger than 1 in. 80-5off

Cut Nails, Chain, Piling

Cut nails, c.l. Pittsburgh 2.50c
Do, less carloads, 5 kegs or over, 2.75c; less than 5 kegs 2.90c.
Chain, BB, BBB, 9/16-1½ in. ..... 33 1/3 off
Sheet piling, Pitts. 1.90c

Bars

Specifications Improved Slightly —Automotive Interest Reviving —Competition Is Keener

BAR PRICES, PAGE 67

Chicago—Bar mills are leading heavy finished departments at 25 to 30 per cent operations. Specifications on contracts are slightly heavier, in contrast with reduced activity in plates and shapes. While some of the pressure against the 1.70c quotation has been lessened, competition from outside mills is marked, and concessions result. Some of the bar gains are due to releases for cold-finished and alloy shapes for several of the large western automotive partsmakers, for shipment between Nov. 15 and Dec. 1. Forward interest is lacking. It appears only one of the implement and tractor works will resume on any schedule of consequence this year. Rail steel bar mills continue at 40 per cent, with a slight improvement in demand for manufacturing bar shapes.

New York—While foreign steel continues to make certain inroads in this market, domestic sellers of steel bars are holding firmly to 1.60c, Pittsburgh. General demand has improved slightly. Common iron bars are 1.60c to 1.70c, Pittsburgh.

Philadelphia—Steel bars are the firmest of the three major finished steel products, at 1.60c, base, Pittsburgh. Business is quiet.

Pittsburgh—Despite lack of improvement in recent bar orders, producers are optimistic regarding better business during November. Inquiry from automotive interests is expected to develop into specifications within the next few weeks. October specifications and shipments compared favorably with those of September. The price usually is 1.60c, Pittsburgh.

Youngstown, O.—More activity in purchasing of soft steel bars is beginning to be noted, a part of this coming from agricultural implement makers. The expected buying of alloy steel bars by automobile partsmakers is slow in maturing. Common steel bars are 1.60c, Pittsburgh.

Cleveland — Merchant steel bars are held at 1.65c, Cleveland, for local and outside delivery, but some weakness has developed in the price of screw stock in the Detroit district. Local consumers have not appreciably altered their meager commitments, but mill interests report good sales are more frequent.

R. W. Stoker has acquired the Modesto Iron Works, Modesto, Calif., and has changed the name to the Atlas Foundry Co.

Cold-Finished Demand Will Gain This Month

Cold Finished Prices, Page 67

Pittsburgh—Cold-finished bar demand has yet to feel the effects of prospective improvement in automotive operations, recent specifications and shipments remaining at a quiet rate. Better releases are looked for in November, however. Requirements of other consumers show practically no change. New business is providing little test of the market, though the 2.10c price is steady on current orders.

Cleveland—Small orders and shipments continue to rule. Impending automotive ordering is certain, however, and other industries have displayed unmistakable signs, in several cases, of being on the upgrade in their cold-finished bar needs. The local base is unchanged at nominally 2.10c.

Tin Plate Output Up; Some Future Orders Placed

Tin Plate Prices, Page 67

Pittsburgh — Tin plate requirements of principal consumers show little change, but operations are slightly heavier as mills have begun to roll some anticipated tonnage. This has increased output to around 45 per cent, compared with a 40 per cent rate recently. Contracting for the first half of 1932 still is slow, although a number of users have signed for that period. The market is $4.75, Pittsburgh, per base box.

New York—Leading consumers of tin plate are beginning to contract for their future requirements. Prices are in line with the $4.75, Pittsburgh, quotation announced Oct. 1.

Philadelphia—American producers have booked 8000 boxes of tin plate for Japan. Competition from abroad, particularly Germany, was sharp.

Plates

Production at Chicago Slower— Shipments from Pittsburgh Hold Gains—Orders Still Small

PLATE PRICES, PAGE 67

New York—Plate sales include 800 tons for tanks for a soap plant at Edgewater, N. J., the fabrication contract going to the United Dry Docks Inc. Demand from the oil industry is slightly more active, with two of the larger oil companies figuring on fair tonnages, and manufacturers of oil equipment specifying more freely. Carlots are moving usually at 1.70c, Coatesville. Placing of contracts by the Colombian Steamship Lines with Newport News Shipbuilding & Dry Dock Co., for the construction of two boats, should release approximately 5000 tons of plates. For 10 to 20 locomotives for the Lehigh Valley railroad recently noted as active, 200 to 400 tons of plates will be required.

Philadelphia—Plate prices are soft at 1.70c, base, Coatesville, Pa., for carlots. Approximately 750 tons of fabricated plate work for chutes, hoppers and screens is being figured for the Philadelphia & Reading Coal & Iron Co.'s Nicholas coalbreaker. Eight locomotives for China awarded to the Baldwin Locomotive Works will require a total of about 320 tons of plates.

Pittsburgh—Plate shipments are holding recent gains and remain slightly heavier than during early October. New business still is light, but a fair tonnage is pending. Awards of river equipment still are lacking but the outlook remains fair based on recent inquiry. The market usually continues 1.60c, Pittsburgh.

Cleveland—Orders have shown a tendency to diminish, and the price is unchanged at 1.60c, Pittsburgh. Tank work for the General Electric Co.'s Cleveland division has attracted a number of outside bidders. The tanks are to be electrically welded and require heads 12 feet in diameter. Length is unstated. Sentiment is distinctly better among mill interests. A nearby mill is aggressivelly seeking firebox and boiler plate orders, a new practice for it.

Chicago—About 1500 tons of plates may be on inquiry soon for a $250,000-expansion in refinery work for the Standard Oil Co. of Kansas. Plate prices are untested, as far as volume is concerned. Production has slowed down to less than 25 per cent. The Milwaukee pipemaker is virtually idle, and no skelp shipments are likely to go forward from here for the next 30 days.

Birmingham, Ala.—Universal plate mills are doing fairly well, with inquiries indicating early improvement. Tank works are shipping on old orders. A considerable tonnage for pipe is in sight.

Contracts Placed

800 tons, tanks, water tower, Lever Bros. plant, Edgewater, N. J., to United Dry Docks Inc., New York; contract placed by Stone & Webster, engineers.

600 tons, 20-inch welded water pipe and specials for Victoria, B. C., to Vancouver Engineering Works Ltd., Vancouver.

550 tons, 30-inch water pipe, and welded specials for Victoria, B. C., to Victoria Machinery Depot Ltd., Victoria.

Contracts Pending

6500 tons, Hetch Hetchy emergency pipe line, San Francisco; bids being taken.

1500 tons, refinery expansion work for Standard Oil Co. of Kansas; plans being projected and inquiry not active.

782 tons, siphon for Hetch Hetchy project, San Francisco; bids opened.

230 tons, two oil barges, for United States engineers, Cincinnati district; bids Nov. 24.

200 tons, second unit, Marmet locks, Great Kanawha river, W. Va.; A. G. Rothey, Elizabeth, Pa., low on general contract.

Bolts and Nuts Weak, Small Rivets Are Steady

Bolts, Nuts, Rivets Prices, Page 67

Chicago—Only one western implement works is resuming on a fair scale and farm equipment orders are expected to be slow, at least for the remainder of this year. Further weakness is shown in 73 and 10 off for bolts and nuts, but small rivets are steady at 70, 10 and 5 off. Moderate automotive business is scheduled for late in November. October specifications of bolts, nuts and rivets were about equal to September, but shipments declined sharply.

New York—Demand for bolts, nuts and rivets has shown an appreciable gain and there has been a particularly good movement of rods. One order recently involved 125 tons of rivets for refrigerator cars being built by the New York Central railroad.

Railroads

Chesapeake & Ohio Fastenings Placed—Northern Pacific Orders 4000 Tons Rails

TRACK MATERIAL PRICES, PAGE 67

New York—Preliminary estimates indicate that 780 freight cars were awarded in October. The great portion was comprised of cars for the Chicago & Illinois Midland. While a number of the cars for this railroad represent rebuilt cars, the work necessary, it is said, is sufficient to place them in the category of new equipment.

Pennsylvania railroad takes bids Nov. 12 on 1400 tons of locomotive tires.

Philadelphia—Baldwin Locomotive Works has booked eight locomotives for export to China. In addition to 1000 tons of rails placed with Bethlehem Steel Co. last week, Western Maryland has ordered an additional 1000 tons from Carnegie Steel Co., and has placed 225 tons of tie plates with Jones & Laughlin Steel Corp., as well as 110 tons with Wheeling Steel Corp. Atlantic Coast Line is placing 5600 tons of tie plates this week.

Buffalo—District rail mills have practically cleaned up their orders but look for rather general covering by eastern lines in the near future with more than seasonal buying during the winter months.

Pittsburgh—The local rail mill resumed operations this week following an extended shutdown. Backlogs still are light, but additional orders are expected before the end of the month. Pending work in fastenings is light while little new business is appearing in freight cars or light rails.

Chicago — Specifications are expected shortly on rail and track fastenings business just booked. Northern Pacific has awarded 4000 tons of rails to United States Steel Corp. subsidiaries and Bethlehem Steel Co. About 1500 tons of track fastenings will be let. That road's purchase is only slightly behind last year, when 5000 tons was bought. More active rail buying is expected late in the year. Western rail mills are continuing at about 25 per cent operations, and it is indicated they will not be closed down this year.

Locomotives Placed

Export to China, 8 locomotives, to Baldwin Locomotive Works, Eddystone, Pa.

Rail Orders Placed

Ford Motor Co. assembly plant, Seattle, track extensions, 125 tons 90 and 100-pound, to Hofius Steel & Equipment Co., Seattle.

Northern Pacific, 4000 tons, allocated as follows: 2400 tons to United States Steel Corp. subsidiaries, and 1600 tons to Bethlehem Steel Co., Bethlehem, Pa.

Western Maryland, 1000 tons to Carnegie Steel Co., Pittsburgh, in addition to award of 1000 tons to Bethlehem Steel Co., noted in STEEL, Oct. 26. Award has also been made of 225 tons of tie plate to Jones & Laughlin Steel Corp., Pittsburgh, and 110 tons tie plates to Wheeling Steel Corp., Wheeling, W. Va.

Car Orders Placed

Aluminum Ore Co., East St. Louis, Ill., ten all-aluminum 70-ton hoppers, to Canton Car Co., Canton, O.

Wire Holds Position; Some Factors Are Better

Wire Prices, Page 67

Chicago—More promise is held out in the merchant wire market because of higher grain prices, despite the fact wheat advances largely are in futures. Western wire mills are at 30 per cent, against 25 recently. October orders equalled the August-September rate, and it is indicated November may be the low point.

Worcester, Mass.—Though volume still is lacking wire production is showing a slightly higher total than during the summer. Prices are firm at 2.30c, base, Worcester.

New York—With nail business light, $1.90, Pittsburgh, remains largely untested. However, mills generally are quoting this figure.

Pittsburgh—Little change is noted in new business in nails and other jobbing products, while specifications for manufacturers' wire also are steady. The market shows a stronger tone and $1.90, Pittsburgh, to jobbers, on wire nails, is well observed although heavy specifications against this price are not expected for several weeks in view of forward buying during third quarter. Plain wire continues 2.20c and wire rods $35.

Cleveland — A decided firmness, even in large lots, on plain manufacturers' wire at 2.20c, base, is a feature. Several contracts on a lower basis still are outstanding, but they are few and are gradually being put on the 2.20c base as they are renewed. Nails are weak at $1.90.

Structural Shapes

Chicago Elevated Highway, 80,000 Tons, Delayed—New York Piers Call for Piling and Shapes — Pittsburgh Mill Operations Gain—Concessions Under 1.60c Made

STRUCTURAL SHAPE PRICES, PAGE 67

New York—Bids will be taken on two additional piers, substructures, in addition to bids closing last week on piers in the midtown section on which Allen N. Spooner & Sons Co. is low. These pier substructures call for heavy tonnages of sheet piling and some structurals. Close to 1000 tons of steel piling for hospital buildings at Wingdale, N. Y., has been placed. General contract award on the Supreme Court building at Washington may be delayed because of protest by a bidder. Prices on plain material are unchanged at 1.70c, Bethlehem, Pa.

Boston—General contract bids are in on post offices at Waterbury, Conn., and Manchester, N. H., close to 700 tons. A. M. Lundberg, St. Louis, is low at Manchester and Murch Bros. Construction Co., St. Louis, is low at Waterbury. Awards are slightly more active on jobs averaging around 200 tons. Prices are steady.

Philadelphia—Profound dullness characterizes the market, with little fresh inquiry and awards taking over 100 tons in only a few instances. Shapes are easy at 1.70c, nearest mill, in carlots with concessions on attractive tonnages. While construction is authorized, the proposed courthouse here requiring 2000 to 3000 tons, is not expected active until spring, 1932.

Pittsburgh—Shape specifications against old orders are heavier and mill operations have been increased moderately. Plain shapes usually are 1.60c, Pittsburgh, with some concessions on large tonnages.

Cleveland—Two sizable jobs here involve the municipal sewage plant, on the general contract for which American Construction Co. is low, followed closely with a better completion time by E. H. Latham Co., Columbus, O.; the other, the underground garage on which Sam W. Emerson Co., Cleveland, is low. The former takes about 2000 tons of shapes and piling; the latter 2400 tons of shapes. Plain material is 1.60c, Pittsburgh.

Chicago—Efforts to start work this winter on the west side elevated highway in Chicago appear to be fruitless, and the 80,000 tons in this project apparently will go over until spring. Plain material base is nominal at 1.70c, mills. Bids for 71 Illinois road, bridge and grading projects will be re-opened this week. Bids for five bridges over the Illinois river at Joliet, Mar eilles, Ill., and Brandon road, Chicago, on Nov. 24, will embrace 10,000 to 12,000 tons, which will go ahead at once. About 4000 tons is active for the Minneapolis post office.

Contracts Placed

7400 tons, viaduct, New York Central railroad, West Eighteenth to Thirtieth streets, New York, to McClintic-Marshall Corp., Bethlehem, Pa., through James Stewart Co., contractor.

1500 tons, bridge over Canadian river, Okla., for Oklahoma state highway commission, to Kansas City Structural Steel Co., Kansas City.

1400 tons, postoffice, Hartford, Conn., to Bethlehem Fabricators Inc., Bethlehem, Pa., through Karl Koch Co., New York.

1040 tons, postoffice, Oklahoma City, Okla., to J. B. Klein Iron & Foundry Co., Oklahoma City; Devault & Deitrick, Canton, O., contractors.

1000 tons, steel piling, foundations, buildings, Harlem Valley hospital, Wingdale, N. Y., to Jones & Laughlin Steel Corp., Pittsburgh; Frederick Snare Corp., contractor.

950 tons, state bridges, double leaf bascule spans, Cecil and Dorchester counties, Maryland, to Virginia Bridge & Iron Co., Roanoke, Va.; A. D. Fox & Co., Dayton, O., contractor.

750 tons, six overhead street crossings for Milwaukee Electric Railway & Light Co. at Kenosha, Wis.; distributed among Kenosha Boiler & Structural Co., Kenosha; Worden-Allen Co., Milwaukee Structural Steel Co., and C. Hennecke Co., Milwaukee.

650 tons, Bridge street bridge, Wausau, Wis., to Milwaukee Bridge Co., Milwaukee.

500 tons, pavilions A, B, C and D, farm colony, Staten Island, N. Y., to B. Schacht & Sons, Bronx, N. Y., through Rosoff Bros., Brooklyn, N. Y., contractors.

500 tons, bridge girders, Baltimore, Pennsylvania railroad, to American Bridge Co., Pittsburgh.

500 tons, school No. 242, Queens, N. Y., to Easton Structural Steel Co., Easton, Pa., through Lundin Construction Co.

500 tons, bridge, Susquehanna county, Pa., to unstated.

486 tons, state bridges, Iowa, to Pittsburgh-Des Moines Steel Co., Des Moines, Iowa.

475 tons, auditorium, Raleigh, N. C., to Virginia Bridge & Iron Co., Roanoke, Va.

439 tons, two warehouses for R. J. Reynolds Tobacco Co., Winston-Salem, N. C., to Virginia Bridge & Iron Co., Roanoke, Va.

419 tons, sheet steel piling, Kempsville and LaGrange cofferdams, United States engineer, Chicago, to Joseph T. Ryerson & Son Inc., Chicago.

400 tons, bank, Richmond, Va., to Virginia Bridge & Iron Co., Roanoke, Va.

360 tons, Presbyterian church, Newark, N. J., to Goeller Steel Construction Co., Newark, through Carlson Co., Montclair, N. J., contractors.

350 tons, postoffice, Helena, Mont., to American Bridge Co., Pittsburgh.

332 tons, pier shed, Providence, R. I., to J. H. Tower Iron Works, Providence.

300 tons, three bridges, DeKalb county, Ill., to Missouri Valley Bridge & Iron Works, Leavenworth, Kans.

300 tons, foundation work, building for Motorist Association of Illinois, Twenty-fourth and Michigan avenues, Chicago, to American Bridge Co., Pittsburgh.

250 tons, filtration plant, Eugene, Oreg., water system, to unnamed interest.

250 tons, state bridge, Huntington, Pa., to unstated.

235 tons, hangar and air corps administration building, East Boston airport, Massachusetts state armory commission, to New England Structural Co., Boston; J. P. Keating, Boston, contractor.

230 tons, school, Morristown, N. J., to Elizabeth Iron Works, Elizabeth, N. J.

221 tons, grade crossing elimination, Columbus, O., for Norfolk & Western railroad, to American Bridge Co., Pittsburgh.

210 tons, school building, Exeter, N. H., to Lyons Iron Works, Manchester, N. H.; Davison & Swanberg, Manchester, N. H., contractor.

200 tons, school, Brookline, Mass., to Palmer Steel Co., Springfield, Mass.

200 tons, school addition, Montclair, N. J., to Standard Iron Works, Newark, N. J.

200 tons, Pasadena Post building, Pasadena, Calif.; to unnamed interest.

200 tons, Roosevelt high school, Peoria, Ill., to Mississippi Valley Structural Steel Co., Decatur, Ill.

175 tons, stadium, Paterson, N. J., to John K. Cooke & Son, Clifton, N. J.

165 tons, Summerdale avenue bridge, Philadelphia, to American Steel Engineering Co., Philadelphia.

155 tons, building, Radcliffe college, Cambridge, Mass., to New England Structural Co., Boston; Morton C. Tuttle Co., Boston, contractor. Kalman Steel Corp. awarded 25 tons reinforcing bars.

155 tons, bridge, over Boston & Albany railroad, McKinistry avenue, Chicopee, Mass., to Palmer Steel Co., Springfield, Mass.; Daniel O'Connell Sons Inc.,

Awards Compared

	Tons
Awards, week ended Oct. 31	**23,022**
Awards, week ended Oct. 24	**15,681**
Awards, week ended Oct. 17	**15,137**
Awards this week in 1930	**38,799**
Av. weeky awards, 1930....	**35,242**
Av. weekly awards, 1931....	**35,893**
Av. weekly awards, Oct.....	**22,647**
Total awards to date, 1930..	**1,619,180**
Total awards to date, 1931..	**1,615,182**

Boston, contractor.

155 tons, warehouse for National Milling Co., Toledo, O., to Fort Pitt Bridge Works Co., Pittsburgh, through McDonald Engineering Co., Chicago, contractor.

140 tons, monorail system, Lincoln Motor Co., West Warren and Livernois avenues, Detroit, to Whitehead & Kales Co., Detroit.

140 tons, vocational school, Manitowoc, Wis., to Milwaukee Bridge Co., Milwaukee.

125 tons, suspension bridge, Hoover dam, Boulder, Colo., to International Derrick & Equipment Co., Torrence, Calif.

120 tons, county bridge, Painesville, O., to Guibert Steel Co., Pittsburgh.

100 tons, building, Brockton, Mass., to Boston Bridge Works Inc., Boston.

100 tons, school, Winchester, Mass., to Boston Structural Steel Co. Inc., Boston.

100 tons, Jenkins laboratory, New Haven, Conn., to Palmer Steel Co., Springfield, Mass.

Unstated tonnage, 500 steel forms, United States engineer, Memphis, Tenn., to Truscon Steel Co., Youngstown, O., at $8,685 each.

Contracts Pending

4000 tons, postoffice, Minneapolis.

3500 tons, building, departments of health, sanitation and hospitals, New York.

2500 tons, Gill-Erving bridge, Mass.; McClintic-Marshall Corp., Bethlehem, Pa., low.

1875 tons, 1100 tons sheet piling and 300 tons shapes, grade crossing elimination, Black Rock, N. Y., for Canadian Pacific, Baltimore & Ohio, Erie and New York Central railroads.

1800 tons, grade crossing elimination, Whitehall, N. Y., for Delaware & Hudson railroad, comprising 1100 tons sheet piling and 700 tons structurals; Hecker-Moon Co., Cleveland, contractor.

1445 tons, roller gate dam, power house, combined intercepter sewer and sea wall at lock and dam No. 15, Mississippi river, United States engineer, Rock Island, Ill.; bids Dec. 18. Additional material includes 186 tons nickel steel, 160 tons sheet piling, 56 tons steel castings, 32 tons bolts, 42 tons cast iron pipe, 6 tons forgings, 15 tons iron castings, 8 tons nickel steel castings, 1265 feet 80-pound crane track, 1265 feet 50-pound crane track.

1100 tons, hangar and shops, Wheeler Field, T. H.; K. Colburn, Pasadena, Calif., low on general contract.

1100 tons, men's gymnasium, University of California, Berkeley, Calif.; bids being taken.

900 tons, bridges, Michigan state highway commission; bids Nov. 5, 10, 12 and 13.

700 tons, power plant, Chicago union station.

500 tons, track springers, easterly lower deck approach span, Manhattan bridge, New York; reconstruction work, bids Nov. 6.

500 tons, Avalon park fieldhouse, Eighty-third street and Avalon avenue, Chicago, inquiry dependent upon disposition of $375,000 in bonds; bids to be taken by South Park commissioners, Chicago.

500 tons, three Pennsylvania railroad bridges, Camden county, N. J.; bids opened Nov. 5 under Clayton act.

500 tons, bridge, Franklin county, Ind.; bids Nov. 5.

400 tons, substructure, pier 9, Old Slip, East river, New York; bids Nov. 4, department of docks. Pier to be leased to Munson line.

400 tons, bridge, Worcester-Shrewsbury route, Massachusetts.

355 tons, steel beam bridge, Columbus-Sandusky road, Delaware county, O., for Ohio state highway department; project No. 421; bids Nov. 6; 65 tons reinforcing included.

260 tons, sheet piling, cutoff wall, Chesapeake & Ohio canal, Wilmington, Del.; bids opened Nov. 26, United States engineers.

250 tons, Morton street bridge, Boston.

200 tons, highway bridge over Canyon creek, Colo.

200 tons, remodeling Marshall Field Co. warehouse, Jackson boulevard, Chicago.

200 tons, elevated structure reconstruction, Flatbush-Myrtle avenue, Brooklyn, N. Y.

198 tons, two bridges, San Benito county, Calif.; bids opened.

192 tons, sheet piling, cut off wall, Summit bridge; bids Nov. 24, United States engineer, Wilmington, Del.

160 tons, some piling substructure, pier 45, West Tenth street, Hudson river, New York, bids Nov. 5, department of docks. Pier to be leased to Italian Line.

125 tons, crane runway, Danby, Vt.

125 tons, caisson rings, foundations, postoffice and courthouse, Detroit; Walbridge-Aldinger Co., Buhl building, Detroit, general contractor.

120 tons, junior high school, Galveston, Tex.; M. C. Bowden, Galveston, contractor.

120 to 400 tons, sheet piling, construction Eleventh street bridge, Wilmington, Del., depending upon type of construction adopted.

Concrete Bars

Stronger Tone Noted in Billet and Rail Steel—Small Lots Heavy at New York—5000-Ton Power House and Dam Up at Rock Island, Ill.—Awards Smaller

REINFORCING BAR PRICES, PAGE 67

Chicago—Reinforcing bar prices have stiffened about $1 a ton, billet bars being quoted 1.50c to 1.60c. Rail steel bars are quoted 1.30c to 1.50c. In the re-letting of Illinois highway work, bids are opened Nov. 2 for 1215 tons. Other lettings will be on Nov. 12 and Nov. 24. Much of this will not be shipped until 1932. Several bar fabricators report October as the first month this year in which shipments declined from a preceding month.

Boston—Several hundred tons are up for bridges and other public work. Awards are not heavy, being limited to small lots, which are slightly more numerous. Prices are unchanged, but inclined to be a trifle steadier.

New York—Pronounced increase in orders for small lots is noted, number of orders having doubled in some instances. Prices on such small lots are firm, full quoted figures being often obtained. On larger lots concessions continue. For hospital buildings at Wingdale, N. Y., 900 tons has been placed. Fresh inquiry is moderately heavy, almost entirely confined to public work.

Philadelphia — Reinforcing bars appear held at 1.60c, Pittsburgh, for mill lengths, a fair-sized tonnage being recently placed on this basis. Until scattered protections are out of the way at lower prices, firmness cannot be fully gaged.

Pittsburgh—Shipments are well maintained. New business also is fairly steady but off slightly from the September rate. A stronger tone is noted in prices with less shading observed on attractive lots. The market usually is 1.60c for mill lengths.

Cleveland—Over 35 small bridge projects for the Ohio state highway department, taking up to 75 tons each, go in for bid Nov. 6. The several large jobs here of 1000 tons and over, including Nine Mile creek, municipal sewage plant, Bedford grade crossing, are slow being bought. Cut lengths are quoted 1.75c, Cleveland.

Awards Compared

	Tons
Awards, week ended Oct. 31	**4,177**
Awards, week ended Oct. 24	**12,195**
Awards, week ended Oct. 17	**14,001**
Awards this week in 1930..	**8,211**
Av. weekly awards, 1930..	**6,990**
Av. weekly awards, 1931....	**6,999**
Av. weekly awards, Oct.....	**7,886**
Total awards to date, 1930..	**320,935**
Total awards to date, 1931	**314,970**

Contracts Placed

1500 tons, two government projects, Washington, to Concrete Steel Co., New York, through McCloskey & Co., Philadelphia, contractor. Reported in STEEL, Oct. 26, to unstated.

900 tons, foundations, buildings, Harlem Valley hospital, Wingdale, N. Y., to Kalman Steel Corp., Bethlehem, Pa.;

(*Concluded on Page 75*)

Strip

Slight Gain in Volume Appears —Automotive Needs Promising —Hot-Rolled Is Shaded

STRIP PRICES, PAGE 67

Pittsburgh — Anticipated orders from automotive interests are slow to be placed and recent specifications show little change from the rate of several preceding weeks. Heavier orders are confidently expected this month, however, in view of recent inquiry. October shipments showed a slight gain over those of September. The market generally continues 1.55c and 1.65c for hot strip and 2.15c for cold-rolled strip, although some concessions are reported, larger lots of hot strip going at $1 a ton less, with cold strip shaded $2 in several instances. Mill operations are slightly higher at 20 to 25 per cent.

New York—Strip sellers here report little improvement in business in October, with prospects for November unsettled. Hot-rolled strip remains at 1.55c and 1.65c, Pittsburgh, and cold-rolled strip at 2.15c, Pittsburgh, although a weaker tone is in evidence.

Youngstown, O.—About $1 a ton has been conceded to hot-rolled strip users by some competing mills, and on wide strip 1.50c to 1.55c, Pittsburgh, is the usual range. Cold-rolled strip holds at 2.15c, Pittsburgh or Cleveland.

Cleveland—Continued concessions bring the quotable range of hot-rolled strip down $1 a ton on both widths, the easing being more apparent in wide strip. Cold-rolled however, is quiet at 2.15c, Cleveland minimum. Hot-rolled is now 1.50c to 1.55c, Pittsburgh, for wide, 1.60c to 1.65c for narrow. October sales slightly bettered September, increases being noted in the toy trade and from miscellaneous consumers .

Chicago—Hot-rolled strip steel for automotive frames is in slightly better demand. Shipments to the Milwaukee frame fabricator have increased moderately. Hot-rolled strip, 6 1/6 to 24-inch, is quoted 1.65c, Chicago mills, while the narrow sizes are 1.75c. Cold strip makers expect a number of releases for shipment to the Detroit automobile area, beginning about Nov. 15.

Operations Last Week 28 Per Cent; Showing Gain

Youngstown, O.—Steel production was at 30 per cent last week, up six points from the prior week. Ingot production is expected to expand moderately this week, possibly to 31 per cent. As of Oct. 31 there were 19 of 66 open hearths melting, a gain of five units from the prior week. Individual operating rates as of last week show Republic Steel at 32, Carnegie Steel at 40, Youngstown Sheet & Tube at 18 and Sharon Steel Hoop at 20 per cent ingot capacities. As for several months, hopes for higher steel production rest on anticipated automobile production, but last week the effects of a moderate upturn in automotive steel buying at the Carnegie Steel plant took tangible form in greater demand for rim stock, brake drums and other automobile shapes.

	Per Cent
Operations, week ended Oct. 31	28
Operations, week ended Oct. 24	27
Operations, week ended Oct. 17	28
Operations, this week, 1930	46.5
High for 1931 (March 19)	57
Low for 1931 (Oct. 24)	27

Pittsburgh—Ingot production was increased three points to 28 per cent during the past week while a further slight gain is in prospect for this week. This results largely from increased activity of the Carnegie Steel Co., only slight gains being reported by the independents. Blast furnace schedules are unchanged at 11 active steelworks stacks out of 54.

Philadelphia—Operations last week were at 29 per cent capacity among eastern steel mills, up fractionally from the week before. A leading interest was up from last week at 32 per cent as of Oct. 31. This week, production is continuing at 29 per cent engaged.

Cleveland — Ingot operations slipped six points last week from the week prior and at 29 per cent represented ten open hearths engaged of a possible 34. Decline was due to the temporary shutdown at the open-hearth department of Otis Steel Co. Indications are that this week the 29 per cent rate is to be continued.

Buffalo — Operations held up slightly better than had been anticipated last week, but a drop of 13 points to 22 per cent was nevertheless recorded from the prior week. This was due partly to staggered operations in one plant. At one time it had been planned to reduce production to 20 per cent of capacity but this was found unnecessary. This week the operating rate will be about 35 per cent.

Chicago — Ingot production last week was slightly under 25 per cent, representing a slight recession from the preceding weekly period. This week operations are scheduled for about 25 per cent, with the possibility that a few open hearths idle late last week will be fired. Nine of the district's 36 blast furnaces again are active.

Birmingham, Ala. — With eight open-hearth furnaces on, operations, based on ingot production, were at 30 per cent last week, holding the pace of the week before. With schedules to be unchanged, same production will be maintained this week.

Warehouses Small Sales Expand In Number

Warehouse Prices, Page 85

New York—Orders as a rule are confined to small-lot shipments and, while they are numerous, little, if any, increase in tonnage is noted. Buying is well spread and prices are unchanged. A local warehouse has booked small lots of sheets, plates, angles and flats for the department of plants and structures, additional fourth quarter requirements.

Boston—An increasing number of small orders comes from representative industries but October's sales volume was not an appreciable gain over September's. Sheets from jobbing outlets are moving better.

Philadelphia—Jobbers report continued dullness in trading with prices unchanged.

Pittsburgh—Sales show a slight gain recently, although October improvement over September was mild.

Cleveland—Further improvement in demand is lacking. A slight upturn was noted in a number of quarters during the early part of October, but little change has occurred during the past week.

Detroit—October's orders and total tonnage ran slightly ahead of September but at the close experienced the usual month-end reduction.

Chicago—Recent heavier demand gor boiler tubes from stock is due to seasonal fitting out of heating plants. October business subsided at the close and was a shade under September's. No trend is indicated.

Concrete Bars Placed

(*Concluded from Page 71*)

Frederick Snare Corp., contractor.

500 tons, boulevard, Schuylkill river development, Philadelphia, to unstated, through Frederick Snare Corp., New York, contractor.

490 tons, service building, Syracuse Lighting Co., third unit, Syracuse, N. Y., to Kalman Steel Corp., Bethlehem, Pa.; Fred T. Ley & Co. Inc., Springfield, Mass., contractor. Sixty tons structurals to Syracuse Engineering Co., Syracuse.

326 tons, highway work, Los Angeles county, Calif., to unnamed interest.

300 tons, bridge, Custer county, Okla., for state highway commission, to Capitol Steel & Iron Co., Oklahoma City, Okla.

220 tons, convent buildings, New Orleans, to Truscon Steel Co., Youngstown, O.

200 tons, postoffice, Oklahoma City, Okla., to J. B. Klein Iron & Foundry Co., Oklahoma City; Devault & Deitrich, Canton, O., contractors.

200 tons, bridge, Susquehanna county, Pa., to Truscon Steel Co., Youngstown, O.

190 tons, non-commissioned officers' quarters, Mineola, N. Y., to Concrete Steel Co., New York; Shawmut Construction Co., Boston, contractor.

170 tons, school, Union City, N. J., to Truscon Steel Co., Youngstown, O., through Reliable Construction Co., contractor.

150 tons, Van Sciver Co. store, Trenton, N. J., to Kalman Steel Corp., Bethlehem, Pa.

125 tons, Pasadena-Post building, Pasadena, Calif., to unnamed interest.

106 tons, 50 tons shapes to Brown Steel Co., Columbus, O., and 56 tons reinforcing to Truscon Steel Co., Youngstown, O., tuberculosis sanitarium, Newark, O.; Hawkins Construction Co., Newark, contractor.

100 tons, swimming pool, Bellwood, Ill., to Concrete Engineering Co., Omaha, Nebr.

100 tons, shop buildings, McNeil island, Wash., federal penitentiary, to Northwest Steel Rolling Mills, Seattle, and other interests.

100 tons, courthouse, Waynesville, N. C., to Southern Fireproof Co., Atlanta, Ga.

Unstated tonnage, 20,000 pieces reinforcing steel fabric, United States engineer, Memphis, Tenn., to National Steel Fabric Co., Pittsburgh; 33.3c f.o.b. contractor's mill.

Unstated tonnage, bridge, Allegany county, N. Y., to Kalman Steel Corp., Bethlehem, Pa.; G. W. Rice, Cuba, N. Y., contractor.

Contracts Pending

5000 tons, roller gate dam, power house, combined intercepter sewer and sea wall at lock and dam No. 15, Mississippi river, United States engineer, Rock Island, Ill.; bids Dec. 18.

2000 tons, bridge, Albany-Rensselaer, N. Y., state project, bids Nov. 10 at Albany.

500 tons, hangars and shops, Wheeler Field, Hawaiian Islands; K. Colburn, Pasadena, Calif., low on general contract.

350 tons, widening Eleventh street bridge, Tulsa, Okla.; Wood & Witten, Tulsa, engineers; plans soon.

300 tons, state highway, Orange county, N. Y.

270 tons, foundation, postoffice and courthouse, Detroit; Walbridge-Aldinger Co., Buhl building, Detroit, general contractor.

225 tons, junior high school, Galveston, Tex.; M. C. Bowden, Galveston, contractor.

225 tons, high school, Yonkers, N. Y.

200 tons, additions, Lyman Mills, Lyman, S. C.

200 tons, postoffice, Aurora, Ill.; bids Nov. 2.

150 tons, garage, Newark, N. J.

135 tons, Thirtieth street postoffice foundation, Philadelphia.

Unstated tonnage, 100 tons or more, ¾-inch round to 1¼-inch square, up to 40 feet long, Panama Canal; bids Nov. 5.

Pipe

Ft. Wayne, Ind., Will Buy 25,000 Tons Steel or Cast—5000 Tons Cast Placed

PIPE PRICES, PAGE 85

Chicago—Leading in interest in the cast market is inquiry for about 1500 tons, miscellaneous sizes, for Ft. Wayne, Ind., sewage treatment works. Connecting this project with city mains will be a 12-mile line of 48-inch cast or steel pipe, totaling about 25,000 tons, but work on the pipe line likely will not go forward until 1932. Private cast work is being closed at $33 to $35, Birmingham, Ala.

Pittsburgh—October business in standard pipe was slightly heavier than that of September. Action is anticipated before the end of the year on the proposed line of the International Utilities Corp. from Montana to British Columbia. A local mill has booked part of 65 miles of 8-inch pipe from the Stanolind Pipe Line Co.'s gasoline line being laid in New England.

New York—Cast awards last week approached 5000 tons, the largest, 2000 tons, going to the Phillipsburg, N. J., foundry on a water line, Brooklyn. Bids are in on approximately 1000 tons of 30-inch for Manhattan and figures go in Nov. 6 on 400 tons for the same borough. Prices which showed some indication of steadiness several weeks ago are again in a chaotic state.

Cast Pipe Placed

2000 tons, mostly 12 and 20-inch, for Brooklyn, N. Y., department of water supply, gas and electricity, to Warren Foundry & Pipe Co., Phillipsburg, N. J.; Kniden Construction Co., contractor.

1725 tons, 6 to 20-inch class B. Long Beach, Calif., to United States Pipe & Foundry Co., East Burlington, N. J.

1600 tons, 750 tons, 6 to 10-inch, Verdoy section, water extension, and 850 tons, West Albany section, Latham's water district, Colonie, N. Y., former to Warren Foundry & Pipe Co., Phillipsburg, N. J.; West Albany section to United States Pipe & Foundry Co., East Burlington, N. J.

1000 tons, 4 to 12-inch class C and D, including hydrants and accessories for Victoria, B. C., water system extension to Evans, Coleman & Johnson Bros. Ltd. and Ramsey Machine Works, Victoria, B. C., and to Leith, Murray & Co. Ltd. and McLellan, McFeely & Prior Ltd., Vancouver, B. C.

700 tons, wrought iron pipe, Pennsylvania railroad station, Thirtieth street, Philadelphia, to A. M. Byers Co., Ambridge, Pa.

627 tons, up to 30-inch and fittings, Washington, to Lynchburg Foundry Co., Lynchburg, Va.; $26.85 and $68.90 respectively.

420 tons, 10 to 24-inch, two sections, sewage disposal plant, Princeton, N. J., to United States Foundry & Pipe Co., East Burlington, N. J.; one section still pending.

225 tons, 6 to 18-inch, Framingham, Mass., to Warren Foundry & Pipe Co., New England foundry.

175 tons, 8 and 14-inch centrifugal for improvement, Chehalis, Wash., to American Cast Iron Pipe Co., Birmingham, Ala., through R. C. Polk, Seattle.

Steel Pipe Placed

5000 tons, 8-inch electric steel pipe, installation in Ohio for Stanolind Pipe Line Co., allocated among: Republic Steel Corp., Youngstown, O.; A. O. Smith Corp., Milwaukee; National Tube Co., Pittsburgh; and Youngstown Sheet & Tube Co., Youngstown, O.

3000 tons, steel pipe, Schuylkill river development, Philadelphia, to H. Belfield Co., jobber, Philadelphia.

1050 tons, 4½-inch seamless, for Texas Co., New York, to unstated.

900 tons, 9¾-inch steel pipe for Pennsylvania Power & Light Co., Allentown, Pa., to Republic Steel Corp., Youngstown, O.

Steel Pipe Pending

25,000 tons, steel or cast pipe for 12-mile, 48-inch pipe line connecting Ft. Wayne, Ind., sewage treatment works with municipal sewage outlet; project awaiting settlement of legal difficulties, will be active early 1932.

1200 tons, 8-inch, for unstated buyer, New York.

750 tons, 4½-inch seamless, for Texas Co., New York.

600 tons, seamless tubing for Japan, order being closed with American seller.

100 tons, small sizes butt and lapweld steel pipe, Pennsylvania railroad, bids Nov. 5.

100 tons or more, steel boiler tubes for Norfolk, Va., navy yard; National Tube Co., Pittsburgh, low at $33,891.65.

ACME

Hot and Cold Rolled Strip
Nirosta Chrome Nickel Strip
Electro Galvanized Strip

• • • •

Long Length Coils
or Cut-to-Length

ACME STEEL COMPANY

General Offices: 2832-40 Archer Avenue .. Chicago

BROOKLYN DETROIT MILWAUKEE SAN FRANCISCO

STEEL

44

Raw Material Prices

Pig Iron

Per Gross Ton

FOUNDRY, No. 2

Chicago furnace	$17.00
Pittsburgh, dist. fur.	17.00
Pittsburgh, delivered	17.63 to 18.13
Valley furnace	16.00 to 16.50
Cleveland fur., local del.	17.00
Philadelphia, delivered	15.76 to 16.26
Virginia furnace	17.50
Granite City, Ill., fur.	17.50
Buffalo, fur., local del.	17.00
Buff., all-rail, Boston	19.91 to 20.41
Buff., all-rail, Brooklyn	19.40 to 19.90
Buff., all-rail, Newark	17.78 to 18.28
Ala., Bir. fur., local del.	12.00
Alabama, del. Chicago	17.01
Alabama, del. St. Louis	15.42
Alabama, del. Cincinnati	14.69 to 15.19
Ala., Phila., dock del.	16.00 to 16.25
Ala., Balt., dock del.	16.00
Alabama, New York dock	16.50
Ala., Boston dock del.	16.50 to 16.75
Tenn., Bir. base, local del.	13.00
Tennessee, del. Cinn.	14.69 to 15.19
Montreal, delivered	23.00 to 23.50
Toronto, delivered	22.10

FOUNDRY, NO. 2X

Buffalo, fur., local del.	17.50
Buff., all-rail, Brooklyn	19.90 to 20.40
Buffalo, all-rail Newark	18.28 to 18.78
Buff., all-rail, Boston	20.91 to 21.41
Virginia furnace	18.00
Eastern, del. Phila.	16.26 to 16.76

FOUNDRY, NO. 1X

Buffalo fur., local del.	18.50
Eastern, del. Phila.	16.76 to 17.26

MALLEABLE

Valley furnace	16.50
Cleveland fur., local del.	17.00
Pittsburgh dist. fur.	17.00
Pittsburgh, delivered	17.63 to 18.13
Chicago, furnace	17.00
Buffalo fur., local del.	17.50
Eastern Penna., delivered	17.76 to 19.91
Granite City, Ill., fur.	17.50
Montreal, delivered	24.00
Toronto, delivered	22.60

BASIC

Pittsburgh, district fur.	15.50 to 16.00
Pittsburgh, delivered	16.13 to 17.13
Eastern Penn., del.	16.00 to 16.50
Buffalo fur., local del.	16.50 to 17.00
Montreal, delivered	23.50
Valley, furnace	15.00 to 15.50

BESSEMER

Valley furnace	16.50
Pittsburgh, delivered	17.63 to 18.13
Pittsburgh, furnace	17.00

LOW PHOS.

Valley fur., standard	27.00
Philadelphia, standard	23.76 to 26.79
Copper-bear., E. Pa. fur.	21.50 to 23.00

GRAY FORGE

Valley furnace	16.00
Pittsburgh district fur.	16.50
Pittsburgh, delivered	17.13 to 17.63

CHARCOAL

Lake Superior, del. Chi.	25.04

SILVERY

Jackson County, O., fur. in per cents: 6—$19; 7—$19.50; 8—$19.00 to $21.00; 9—$20.50; 10—$21; 11—$22; 12—$23; 13—$25.

BESSEMER FERROSILICON

Jackson County, O., fur. in per cents: 10—23; 11—$24; 12—$25; 13—$27; 14—$29; 15—$31; 16—$33.

Coke

Prices Per Net Ton

Beehive Ovens

Connellsville furnace	$2.40 to 2.50
Connellsville foundry	3.25 to 4.50
New River foundry	6.00
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.25

By-Product Foundry

Newark, N. J., del.	8.70 to 9.10
Chicago, ovens	7.50
New England, del.	10.50
St. Louis, del.	8.50
Birmingham, ovens	5.00
Indianapolis, del.	8.25
Ashland, Ky., ovens, Connell., basis	5.50
Portsmouth, O., ovens, Connell., basis	5.50
Buffalo, ovens	8.00 to 8.50
Detroit, ovens	8.00
Philadelphia, del.	8.75

Iron Ore

LAKE SUPERIOR ORE

Gross ton, 51½%, Lower Lake Ports	
Old range bessemer	$4.80
Mesabi bessemer	4.65
Old range nonbessemer	4.65
Mesabi nonbessemer	4.50
High phosphorus	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%, contract	10.00
Copper-free low phos. 58-65%	nom.

FOREIGN ORE

Cents per units, alongside docks Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-10% manganese	10.00
North African low phosphorus	8.50
Swedish basic, 65%	9.00
Swedish low phos.	10.00
Spanish, North African basic, 50 to 60%	8.50 to 9.00
Newfoundland fdy., 55%	8.50
Tungsten, spot and future short ton unit, duty paid	$11.25 to $11.80
Chrome ore, 48% net ton c.i.f.	$21.50 to 22.00

Manganese Ore

Prices, not including duty, are cents per unit; cargo lots.

Caucasian, 52-55% (nom.)	26 cents
South African, 52%	24 to 26 cents
South African, 49-51%	23 to 24 cents
South African, 44-47%	22.50 cents
Indian, 48-50%	nom.
Brazilian, 46-48% (nom.)	nominal

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. Works

First Quality

Pennsylvania, Ohio, Illinois, Kentucky, Maryland, Georgia, Alabama	$40.00
Missouri	37.00

Second Quality

Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Maryland	25.00 to 35.00
Georgia, Alabama	30.00

SILICA BRICK

Pennsylvania	40.00
Joliet, Ill., East Chicago, Ind.	49.00
Birmingham, Ala.	50.00

MAGNESITE BRICK

Per Net Ton

9 x 4½ x 2½	$65.00

MAGNESITE

Dead burned grain, net ton, Chester, Pa., or Baltimore bases	40.00
Domes, Chewelah, Wash., base	22.00

CHROME BRICK

Net ton, Chester, Pa., and Balt. base, 9 x 4½ x 2½	45.00

Semifinished Steel

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$29.00
Pittsburgh, bessemer	29.00
Youngstown	29.00
Cleveland	29.00
Philadelphia	34.30
Chicago	30.00
Forging, Chicago	35.00 to 36.00
Forging, Pittsburgh	35.00
Forging, Philadelphia	39.30

SHEET BARS

Pittsburgh	29.00
Youngstown	29.00
Cleveland	29.00
Chicago	30.00

SLABS

Pittsburgh	29.00
Youngstown	29.00
Cleveland	29.00

WIRE RODS

Pittsburgh, Cleveland	35.00
Chicago	36.00

SKELP

All grades, Pittsburgh	1.60c

Ferroalloys

(In dollars, except Ferrochrome)

*Ferromanganese, 78-82%, tidewater, duty paid	$85.00
*Ferromanganese, del. Pittsburgh	89.79
Spiegeleisen, 19-20%, domestic fur. spot†	30.00
Ferrosilicon, 50 per cent, freight all., c. l.	83.50
Do, less carload	88.50
Do, 75 per cent	130.00 to 150.00
Silicomang., 2½% carb.	105.00
2% carbon	110.00
1% carbon	115.00
(Spot prices, $5 a ton higher.)	
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. lb., con. del.	11.00
Do, for spot delivery	11.50
Ferrotungsten, stand., lb. cont.	1.10 to 1.20
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.40
Ferro-carbon-titanium carload producers' plants, net ton	150.00
Do, one-ton to c. l.	170.00
Ferrophosphorus, per ton, carload 17-19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic per ton carload, 23-25% f.o.b. Anniston, Ala., 24%	122.50
Ferromolybdenum, stand. 50-60 per cent, per lb.	$1.00
Cal. Molybdate, lb. cont.	.85

†Carloads. Differentials apply to quant. *To users of carloads to 500 tons annually. Differentials to large users.

Fluorspar

85 and 5 per cent grade

Washed gravel Kentucky and Illinois mines, per net ton	$13.00
Washed gravel, import duty paid east, tide, gross ton	18.50

Pig Iron

Eastern Pennsylvania Foundry Grades Down $1 a Ton—General Market Still Lacks Volume

PIG IRON PRICES, PAGE 77

Pittsburgh—Shipments of pig iron and new business are in light volume. Activity has moderated slightly since a month ago and October specifications showed little change from those of September. Quotations have been clarified somewhat with bessemer and malleable now quoted $16.50, valley, and the Pittsburgh furnace price 50 cents higher. On No. 2 foundry the Pittsburgh furnace price continues $17, although in the valley the market for this grade usually is $16. Basic is in a nominal market, continuing $15 to $15.50. The market for silvery iron is slightly easier with the 6 per cent grade quoted $19, and 10 per cent $21, Jackson, O., off $1. The Neville Island furnace has entered the market for production of this iron.

Youngstown, O.—A few small purchases of No. 2 foundry and malleable are noted at $16.50, valley. But outside the city the price has been brought down to $16, furnace, for these grades due to aggressive outside competition. Even less trading activity is going in bessemer and basic, the former holding around $16.50, and the latter at $15 to $15.50.

Boston—While foundries are showing a slight increase in operations, they continue to buy pig iron in small lots with stocks at yards light. Inquiry in general, however has slightly improved with close to 1500 tons sold last week. Buffalo sales in this territory have not been heavy at $15 to $15.50, furnace. Eastern New York iron has sold at $16 to $16 furnace, while local iron is unchanged at $17 to $18.

New York—Foundry iron is off 50 cents a ton here. Buffalo iron now is $14.50 to $15, furnace. Eastern Pennsylvania iron is being offered under the recent $15, furnace, minimum. Differentials are being waived freely. Sales in the past week were close to 3000 tons.

Philadelphia—Weakness in the pig iron market here has led to a decline of $1 a ton in the price of eastern Pennsylvania foundry iron. It is now $15 to $15.50, base, furnace, and none too steady at this level. These prices apply to relatively small lots which comprise the bulk of current business. Despite the price reduction, silicon differentials continue to be waived frequently. The largest reported order in the past week was for 500 tons of No. 2X for a jobbing foundry in this district. Malleable iron is off 50 cents on light trading. Basic is easy, but untested. Pilling & Co. Inc. are low on 224 tons of foundry iron for ordnance department, Washington, bidding $20.75.

Buffalo—Demand for pig iron has improved materially with a number of eastern consumers making purchases for shipment by barge canal during the first ten days of November. In the local district buying continues light, with the prices usually $17, base. For eastern shipment quotations range from $15 to $16, base, Buffalo.

Cleveland—Buying continues for early requirements, and volume is small. A few consumers have inquired as to price prospects for first quarter. No change is in immediate sight, but the trend of pig iron production in this district still is downward, makers seeking to curtail stocks. Another lake furnace may be banked, and one of the Cleveland stacks is likely to operate only at weekly intervals. With output reduced, prospects for a steadier or stronger market appear better. Shipments show moderate expansion, and furnaces serving the automotive industry look for a still better movement in November. Recent reduction of valley quotations has had no effect here, as it is considered merely a recognition of prices that have been going for some weeks. This competition developed prices as low as $15, base, Cleveland, for outside shipment, though $16 usually is the price, and $17 applies for local delivery.

Cincinnati — Inquiries for small lots are more numerous. Sales in the past week exceeded 1000 tons, including 300 tons of southern iron. Prices on northern iron are weak in competitive districts, but southern iron is firm.

Chicago—Some orders for pig iron have been taken recently under $16.50, base, but on the other hand, three or four fairly important contracts for first quarter, next year, have been closed in the last few days at $17, which still is regarded as the market.

St. Louis—Some foundries in this district increased operations moderately during October, but steel mills slowed down to the lowest point of the year, and consumption of pig iron was not as large as expected. A number of implement manufacturers are planning to manufacture for stock in November and December.

Birmingham, Ala.—The pig iron market is quiet, production in Alabama still being limited to six stacks, all but one of which is making foundry iron. Prices are unchanged.

Toronto, Ont.—Demand for merchant pig iron is spotty. Melters show little interest in future requirements, and current sales are small. Production and shipments are at the lowest point of the year.

Ferroalloys Market Quiet; Chicago Shipments Improved

Ferroalloy Prices, Page 77

New York—With steelmaking operations under 30 per cent, ferromanganese specifications are showing little improvement. The market continues nominally $85, duty paid, for material in carlots. Domestic spiegeleisen, 19 to 21 per cent, also is unchanged at $30, furnace, and foreign spiegeleisen, 26 to 28 per cent, is $31.50, duty paid. There is little spot business to test prices.

Slightly larger demand for alloy steels still is being reflected in silicons and low carbon chromes.

Chicago — October shipments of ferroalloys were the best in about four months. Less-carload specifications for ferromanganese have been active. Spiegeleisen is quiet at $30, eastern furnace, for the 19 to 21 per cent material.

Semifinished Demand Now Expected To Improve

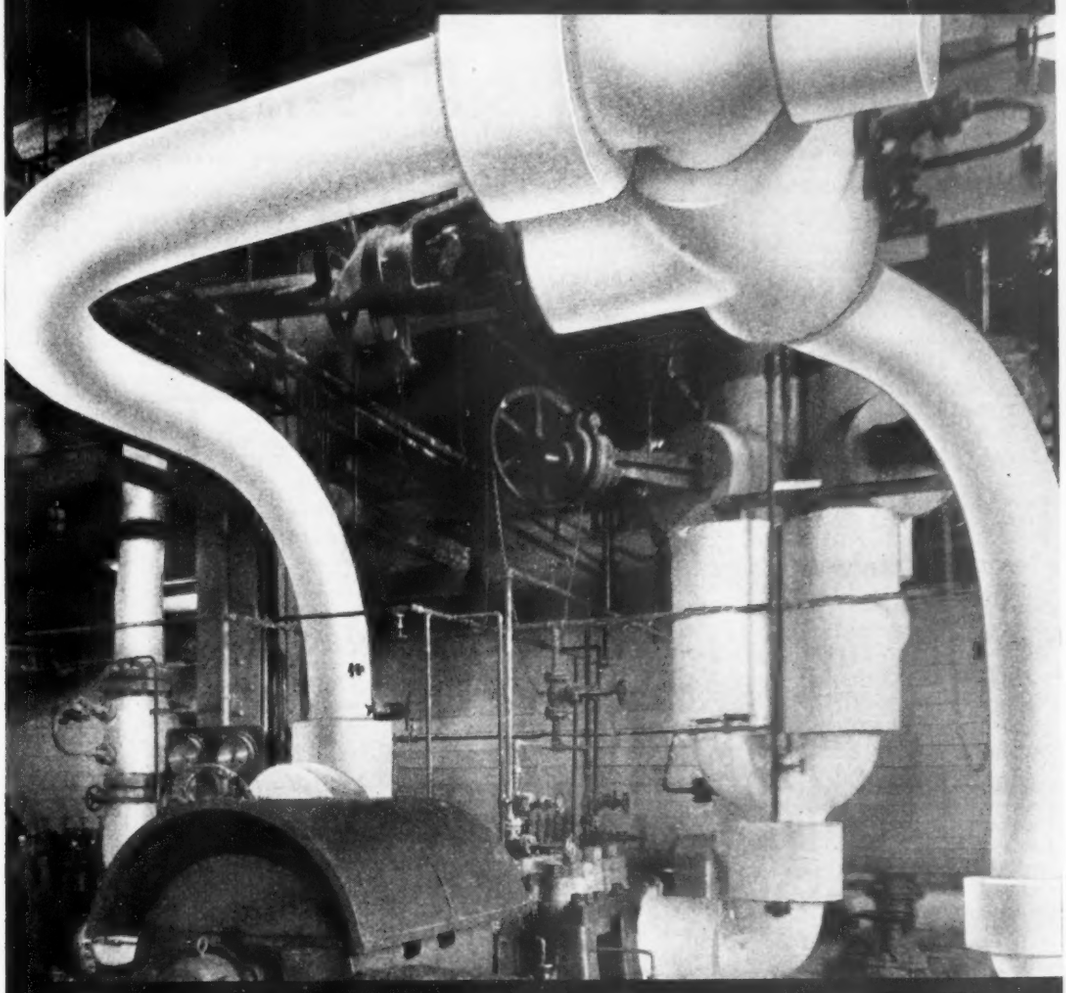
Semifinished Prices, Page 77

Pittsburgh—Shipments of semifinished steel are light and practically unchanged. Better demand is looked for in November in view of the improved outlook for operations of sheet, strip and bar mills during that period. New orders are small, usually at $29 for rerolling billets, slabs and sheet bars and $35 for forging billets and wire rods.

Philadelphia — Business in the semifinished market is listless. Rerollers are $29, Pittsburgh; and forging quality, $34.

Youngstown, O.—Transactions in semifinished steel are confined almost entirely to small lots of sheet bars and billets. Billets, sheet bars and slabs continue to bring $29, Youngstown and Pittsburgh.

THE *Modern* POWER PIPING



Pittsburgh Seamless POWER PIPING

Pittsburgh Seamless is the modern power piping. It has no welded seams or weak points that might fail under stress or vibration. Its uniform wall strength makes it readily adaptable to flanging and bending. It is built to withstand today's heavy working pressures and high temperatures. Made to A.S.M.E. requirements, also A.S.T.M. A-106-29. Immediate shipment from large mill stocks, in a wide variety of sizes and thicknesses. Sizes to 14 inches O.D. Wall thickness to 2 inches. "Pittsburgh" is available in lengths up to 40 feet and over.

PITTSBURGH STEEL PRODUCTS COMPANY

Pittsburgh New York Chicago Division of Pittsburgh Steel Co. Detroit St. Louis Tulsa Houston

Scrap

Prices Sag Further on Small Buying—Offerings Light and Scarcity May Result

Chicago—About 10,000 tons of steel scrap, withdrawn from the market by the Burlington railroad several days ago because of unsatisfactory offers, will be offered again this week. In general, western carriers are withholding scrap on the ground that quotations should be $1 to $2 a ton higher. A number of manufacturing producers are taking similar action. The flow of scrap has been so restricted that predictions of an actual shortage, even under existing low consumption, are being based on the possibility of bad shipping weather. Heavy melting steel is quiet at $7.75 to $8.25. Cast borings have been sustained by the recent buying for a lake cargo to be shipped to Buffalo this week. The shipment, about 3000 tons, is the third cargo

Iron and Steel Scrap Prices

Corrected to Friday night. Gross tons delivered to consumers, except where otherwise stated

HEAVY MELTING STEEL

Birmingham	7.50 to 8.50
Boston, dealers	4.50 to 5.00
Buffalo, No. 1	9.00 to 9.50
Buffalo, No. 2	7.75 to 8.25
Chicago	7.75 to 8.25
Cinci., deal.	7.25 to 7.75
Cleve., No. 1	8.50 to 9.00
Cleve., No. 2	7.50 to 8.00
Det., No. 1 deal.	6.00 to 6.50
Det., No. 2 deal.	5.00 to 5.50
E. Pa. del. mill	7.50 to 8.50
N. Y. deal. R. R.	5.00 to 6.25
N. Y. deal. No. 2	3.50 to 4.00
N. Y. deal. yd.	4.00 to 4.50
Pitts. No. 1	10.00 to 10.50
St. L. No. 1 sel.	8.00 to 8.20
Federal, Ill.	7.50 to 8.00
Granite City, Ill.	7.00 to 7.50
Valleys, No. 1	9.25 to 9.75

COMPRESSED SHEETS

Buffalo, dealers	7.75 to 8.25
Chi. (Factory)	6.50 to 7.00
Cleveland	7.50 to 7.75
Detroit, dealers	6.00 to 6.50
E. Pa. new mat.	7.00 to 8.00
Pittsburgh	9.75 to 10.25
Valleys	8.75 to 9.25

BUNDLED SHEETS

Buffalo	5.50 to 6.00
Cinci., deal.	6.75 to 7.25
Cleveland	6.50 to 7.00
Eastern Pa.	6.50 to 7.00
Pittsburgh	9.50 to 10.00
St. Louis	3.50 to 4.00

SHEET CLIPPINGS LOOSE

Chicago	4.00 to 4.50
Cincinnati	4.00 to 4.50
Detroit, dealers	3.50 to 4.00
St. Louis	3.50 to 4.00

STEEL RAILS SHORT

Birmingham	11.00 to 12.00
Boston, dealers	4.25 to 4.75
Buffalo	12.00 to 12.50
Chicago (3 ft.)	8.75 to 9.25
Chicago (2 ft.)	9.25 to 9.75
Cinci., deal.	12.00 to 12.50
Detroit, deal.	11.00 to 11.50
Pitts. (open-hearth, 3 ft. and less)	12.50 to 13.00
St. Louis	12.00 to 12.50

STOVE PLATE

Birmingham	7.00 to 7.50
Boston, con.	5.00 to 5.50
Buffalo	8.25 to 8.75
Chicago, net	7.00 to 7.50
Cinci., deal. net	4.50 to 5.00
Det., net deal.	4.00 to 4.50
Eastern Pa.	7.50
N. Y., deal. mill	4.75 to 5.50
St. Louis	6.50 to 7.00

COUPLERS, SPRINGS

Buffalo	11.00 to 11.50
Chicago	9.00 to 9.50
Eastern Pa.	13.00
Pittsburgh	11.00 to 11.50
St. Louis	8.50 to 9.00

ANGLE BARS—STEEL

Chicago	8.75 to 9.25
St. Louis	7.50 to 8.00

LOW PHOSPHORUS

Buffalo, billets and bloom crops	12.00 to 12.50
Cleveland bil. and bloom crops	12.00 to 12.50
Eastern Pa.	13.50 to 14.00
Pittsburgh billet bloom crops	14.00 to 14.50
Pitts. sheet bar crops	13.00 to 13.50

FROGS, SWITCHES

Chicago	8.00 to 8.50
St. Louis	8.50 to 9.00

SHOVELING STEEL

Chicago	7.75 to 8.25
Cleveland	6.50 to 7.00
St. Louis	7.50 to 8.00

RAILROAD WROUGHT

Birmingham	7.00 to 8.00
Boston, dealers	8.00 to 8.50
Buffalo, No. 1	7.00 to 7.50
Buffalo, No. 2	9.00 to 9.50
Chicago, No. 1	8.00 to 8.40
Chicago, No. 2	7.75 to 8.25
Cinci., No. 2	7.25 to 7.75
Eastern Pa.	9.50
N. Y., No. 1, deal.	7.00 to 7.50
Pitts., No. 2	10.00 to 10.50
St. Louis, No. 1	5.00 to 5.50
St. Louis, No. 2	7.50 to 8.00

SPECIFICATION PIPE

Boston	4.00 to 4.25
Eastern Pa.	9.50 to 10.00
N. Y., deal.	5.00 to 5.50

BUSHELING

Buffalo, No. 1	7.75 to 8.25
Chicago, No. 1	6.50 to 7.00
Cinn., No. 1 dl.	5.50 to 6.00
Cinn., No. 2	3.50 to 4.00
Cleve., No. 2	6.25 to 6.75
Det., No. 1 new deal.	5.00 to 5.50
St. L., No. 1	6.00 to 6.50
Val. new No. 1	8.75 to 9.25

MACHINE TURNINGS

Birmingham	3.50 to 4.00
Boston, dealers	1.50 to 1.75
Buffalo	4.75 to 5.25
Chicago	4.00 to 4.50
Cinn., deal.	3.75 to 4.25
Cleveland	5.00 to 5.50
Detroit	3.50 to 4.00
Eastern Pa.	5.00 to 5.50
N. Y., deal.	2.00 to 2.50
Pittsburgh	7.00 to 7.50
St. Louis	3.00 to 3.50
Valleys	6.75 to 7.25

BORINGS AND TURNINGS For Blast Furnace Use

Boston	1.50 to 1.75
Buffalo	6.50 to 7.00
Cinn., deal.	3.75 to 4.25
Cleveland	6.50 to 7.00
Detroit, deal.	4.50 to 5.00
Eastern Pa.	5.50
N. Y., deal.	2.00 to 2.50
Pittsburgh	7.25 to 7.75

CAST IRON BORINGS

Birming., chem.	12.50 to 13.00
Birming., plain	3.50 to 4.00
Boston, chem.	7.00 to 7.25
Boston, deal.	1.50 to 1.75
Buffalo	6.00 to 6.50
Chicago	4.00 to 4.50
Cinn., deal.	3.75 to 4.25
Cleveland	6.50 to 7.00
Detroit, deal.	4.50 to 5.00
Eastern Pa.	5.00 to 6.00
E. Pa., chem.	10.50 to 12.00
N. Y., deal.	2.00 to 2.50
Pittsburgh	7.50 to 8.00
St. Louis	5.50 to 6.00

PIPE AND FLUES

Cinn., deal.	6.00 to 6.50

RAILROAD GRATE BARS

Buffalo	6.50 to 7.00
Chicago, net	5.75 to 6.25
Cincinnati	5.00 to 5.50
Eastern Pa.	7.50 to 8.00
N. Y., deal.	5.00 to 5.50
St. Louis	6.00 to 6.50

FORGE FLASHINGS

Boston, deal.	5.00 to 5.25
Buffalo	7.50 to 8.00
Cleve. ov. 10 in.	7.00 to 7.50
Detroit	5.00 to 5.50

FORGE SCRAP

Boston, del.	2.00 to 2.25
Chicago	10.50 to 11.00
Eastern Pa., del.	7.00 to 8.00

ARCH BARS, TRANSOMS

Chicago, net	8.50 to 9.00
St. Louis	7.75 to 8.25

AXLE TURNINGS

Boston, deal.	6.75 to 7.00
Buffalo	7.50 to 8.00
Chi., steelworks	6.50 to 7.00
Cleveland	6.75 to 7.00
Eastern Pa., del.	7.50 to 8.50
Pittsburgh	9.00 to 9.50
St. Louis	6.50 to 7.00

STEEL CAR AXLES

Birmingham	11.50 to 12.00
Boston, ship. pt.	11.00 to 12.00
Buffalo	12.00 to 12.50
Chicago	12.90 to 13.45
Eastern Pa.	17.00 to 18.00
St. Louis	11.50 to 12.00

SHAFTING

Bos., ship. pt.	10.00 to 10.50
Chicago	8.40 to 8.95
N. Y., deal.	9.00 to 9.50
St. Louis	9.00 to 9.50
E. Penna.	16.00

CAR WHEELS

Birming. iron	8.00 to 9.00
Boston, iron	14.00 to 14.50
Buffalo, iron	10.00 to 10.50
Buffalo, steel	10.50 to 11.00
Chicago, iron	9.00 to 9.50
Chi. rolled steel	9.00 to 9.50
Cincinnati, iron	9.50 to 10.00
E. Pa. steel	10.50 to 11.00
E. Pa. iron	12.50 to 13.00
Pitts. iron	10.00 to 10.50
Pitts., steel	11.00 to 11.50
St. Louis, iron	7.00 to 7.50
St. Louis, steel	8.50 to 9.00

NO. 1 CAST SCRAP

Birmingham	9.00 to 9.50
Buffalo (mach.)	10.25 to 10.75
Boston, textile	9.50 to 10.00
Chicago, mach.	9.00 to 9.50
Chi., railroad	8.10 to 8.70
Chicago, agri.	7.60 to 8.10
Cinn., mach. cup., gross	11.00 to 11.50
Cleve. cupola	10.00 to 10.50
Det., net deal.	8.00 to 8.50
E. Pa., cupola	12.50 to 13.00
N. Y. cup. deal.	7.00 to 7.50
N. Y., del. local foundries	12.00
Pitts., cupola	10.00 to 10.50
San Fran., del.	13.50 to 14.00
Seattle	5.00 to 7.50
St. L. No. 1 ma.	8.50 to 9.00
St. L. No. 1	7.50 to 8.00

HEAVY CAST

Boston	10.00 to 10.50
Bos. mach. cast	11.00 to 12.00
Buffalo, break	6.75 to 7.25
Cleve., break	6.00 to 6.50
Detroit, auto, net deal.	10.50 to 11.00
Det., break., dl.	5.50 to 6.00
Eastern Pa.	9.25 to 9.50
N. Y., break, dl.	6.00 to 6.50
N. Y. No. 1 dl.	7.00 to 7.50
Pittsburgh	8.00 to 8.50

MALLEABLE

Boston R. R.	12.50 to 13.00
Buffalo	10.00 to 10.50
Chicago, agri.	7.50 to 8.00
Chicago, R. R.	8.00 to 8.50
Cinci., R. R. del.	9.25 to 9.75
Cinci., agri. del.	9.00 to 9.50
Cleveland, rail	10.00 to 10.50
Det. auto deal.	9.50 to 10.00
St. Louis, rail	6.75 to 7.25

RAILS FOR ROLLING 5 feet and over

Birmingham	10.50 to 11.00
Boston	7.00 to 7.50
Buffalo	10.00 to 10.50
Chicago	10.00 to 10.50
Eastern Pa.	11.50 to 12.00
New York	6.25 to 6.75
St. Louis	10.50 to 11.00

LOCOMOTIVE TIRES

Chicago, cut	10.50 to 11.00
St. L., No. 1	9.00 to 9.50

LOW PHOS. PUNCHINGS

Chicago	11.25 to 11.75
Buffalo	12.00 to 12.50
Eastern Pa.	13.00 to 14.00
Pittsburgh	13.00 to 13.50

to move eastward by boat this season. A large scrap consumer at Gary is said to have reduced its scrap reserves 30 per cent this year.

Boston—Scrap movement is dull, prices on several grades being barely steady. Some activity has developed in cast scrap, with heavy breakable sold at close to $5, on cars. No. 2 cast has also shared a slight gain. Heavy melting steel is listless at $4.50 to $5, shipping point. Central Massachusetts is taking little bundled skeleton scrap at $5.50 and probably slighter under.

New York—Scrap shipments are light with weakness evident on several grades, notably wrought and No. 1 railroad wrought dropping sharply, the former having been delivered at $9 to $9.50. Dealers' buying prices on both grades are off nearly $2 a ton.

Philadelphia—Trading in steel and iron scrap is spotty. Stove plate for Phoenixville, Pa., has been reduced 50 cents per ton to $7.50, delivered, and Pencoyd, Pa., is offering $7 but no purchases are reported. Forge scrap has dropped on small sales to $7 to $8, delivered. Compressed sheets have reacted sympathetically to $7 and $8, delivered. Heavy breakable cast now is $9.25 to $9.50, delivered. United States Pipe & Foundry Co., Burlington, N. J., is reported to have bought the scrap water pipe from Hog Island shipyard.

Buffalo—Bethlehem Steel Co. continues to buy No. 1 heavy melting steel at $9 for delivery at Lackawanna. It is reported two Buffalo dealers have made new contracts of good size and that small dealers down state also have been given orders. There is a rumor here that the Bethlehem offer may be reduced to $8.50. Melters are buying short shoveling turnings at prices netting about $6.75, Buffalo. Trade in other lines continues dull.

Pittsburgh—Scrap is steady, with some improvement in mill buying looked for shortly as a result of better open-hearth operations. Recent buying has been light, but the recent quotation of $10 to $10.50 is substantiated by last sales of this grade. Dealers are able to pick up little material at $10 and are not disposed to take to large orders at $10.50 or less. Sales of other grades usually are at unchanged prices. Offerings of railroads continue light, the November list of the Pennsylvania railroad totaling 19,525 net tons, including 2950 tons of No. 1 heavy melting steel and 3000 tons of iron car wheels.

Cleveland—So little is doing in steel and iron scrap that it amounts to practically nothing. Dealers have contracts on books but no consumer will release any of the tonnage. Quotations remain nominally unchanged.

Detroit—Scrap prices are nominally unchanged in view of almost utter lack of trading. Little supply is being offered and demand is unusually light.

Cincinnati—Demand for iron and steel scrap shows little improvement but somewhat heavier shipments are being made in some grades. Malleable has turned weak at $9 to $9.50, with occasional transactions even lower. Heavy melting steel, borings and turnings remain fairly firm.

St. Louis—Purchasing of iron and steel scrap continues in small volume and on an absolute necessity basis. Sales the past several days total under 1000 tons, all for prompt delivery. In the case of most items, quoted figures are largely nominal, there having been no sales on which to predicate accurate prices.

Birmingham, Ala.—No upward trend is noticeable with buying in small quantities for early delivery. Prices are weak and melters not inclined to place stock on yards.

Toronto, Ont.—Stagnation prevails in the iron and steel scrap markets. With mills shut down or on reduced schedules demand for steel scrap has disappeared and dealers are not shipping heavy melting steel or turnings to the Hamilton, Ont., district. Foundries also report curtailed production and are buying little scrap. Dealers are out of the market and refuse to quote on most grades. Prices are unchanged.

Canadian Scrap

Dealers' Buying Prices

Per Gross Ton

MONTREAL

Iron axles	$11.00
Steel axles	10.00
Car wheels	8.00
Stove plate	8.00
Wrought pipe	2.00
Turnings	2.00
Heavy melting steel	6.00

TORONTO

Steel axles	7.00
Iron axles	7.00
Heavy melting steel	7.00
Turnings	2.00
No. 1 mach. cast (net)	9.00
Malleable (net)	7.00

Chalmers Orders Fall

Allis-Chalmers Mfg. Co., Milwaukee, reports unfilled orders on Sept. 30 totaled $7,915,088, against $9,032,531 on June 30, and $15,545,567 on Sept. 30, last year.

Coke

Foundry and Domestic Requirements Show Some Seasonal Expansion—Furnace Grades Quiet

COKE PRICES, PAGE 77

Pittsburgh—Little new business in furnace coke is appearing, while demand for the foundry grade is steady and unchanged. Activity in domestic coke shows a little additional improvement, due largely to mild weather. Prices generally are steady with standard furnace coke rather nominal at $2.40, and foundry coke $3.25 to $4.50.

New York—The foundry melt in this district hovers around 25 per cent, and consumption of coke continues to lag. Beehive furnace coke is unchanged at $2 to $2.25, Connellsville, Pa., and beehive foundry coke is $3 to $3.25, Connellsville, for standard grades, and $4.50, Latrobe, Pa., for premium brands. By-product foundry coke is steady at $8.70 to $9.10, Newark, N. J.; $10.50, New England; and $8.75, Philadelphia. Domestic consumption of by-product coke is beginning to reflect seasonal influences.

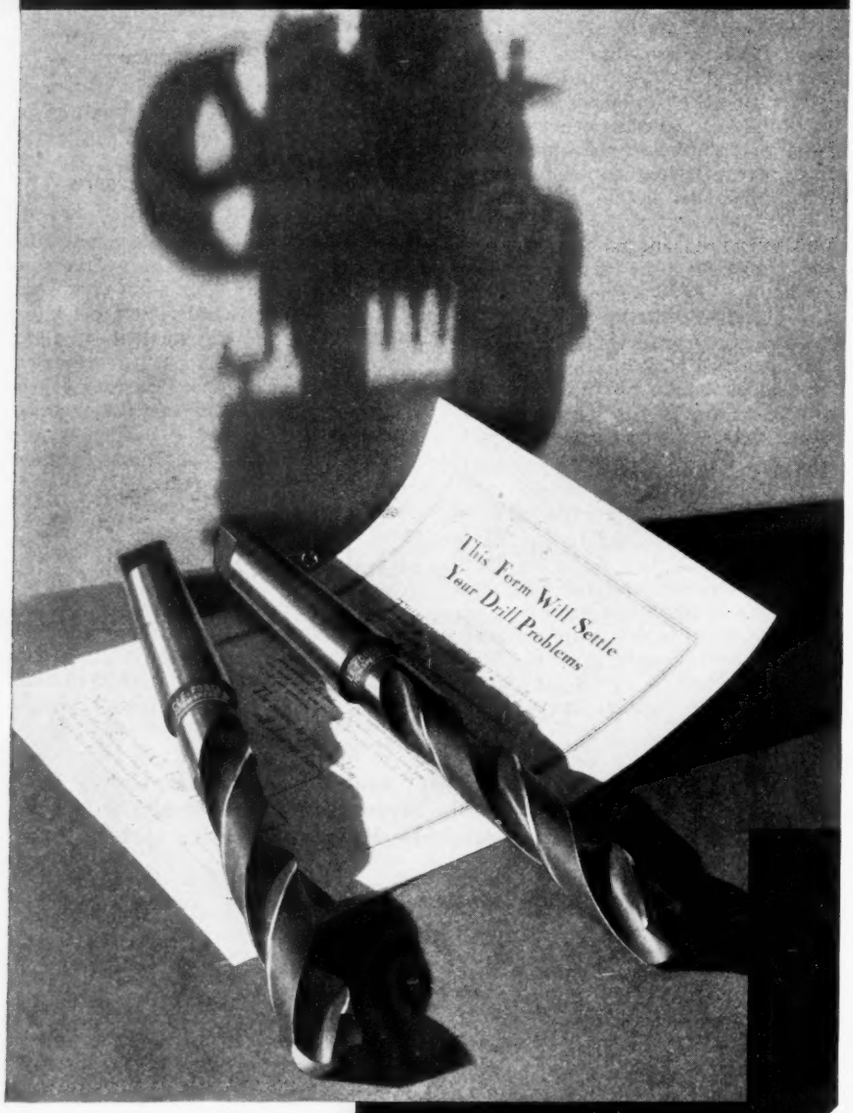
Ray-Mount Products Co., New York, is low on 100 tons of foundry coke for Panama on a bid of $2042.

Cincinnati—Sporadic increases in specifications for by-product foundry coke give hope of an improved melt. Domestic grades are moving freely. Foundry coke remains $9, delivered Cincinnati.

St. Louis—Foundries are covered, and new orders for coke are at a low ebb. Consumption at steel plants has slowed down. Producers stocks show a rising tendency.

Birmingham, Ala.—A considerable stock of coke is being carried at by-product plants, first quality foundry grades being offered at $5; and domestic, $2.50 to $4. A little more than half of the ovens are operating. Business is light.

Prove these Drills on your own Machines



The average drill test is superficial. It tells little — proves nothing. Certainly it must fail to satisfy that factory executive who wants his facts exact and accurate. • The surest way to determine the real value of high speed twist drills is by using the "Cost-per-Hole" Test, originated by this Company. Its final figures admit of no doubts, no questions. Like the solution of a problem in mathematics, it proves the case once and for all. • A large number of tests point to the superiority of Cle-Forge High Speed Drills on a wide variety of jobs. That Cle-Forge shows up so well in these tests indicates the true quality of the drill.

•

So confident are we that Cle-Forge is capable of doing a better, more economical job for you that we will gladly (upon request by letter or coupon at the left) send our "Cost-per-Hole" Drill Test Form so that you can make the test in your own shop, alone . . . Take nobody's word . . . Accept only the final "Cost-per-Hole" figures.

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1242 EAST 49TH STREET
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Without obligation, send "Cost-per-Hole" Drill Test Form, with sample instruction sheet—and Cle-Forge Performance Digests

Name_____

Company_____

Address_____

Steel, Wrought and Cast Iron Pipe, and Tubing

Welded Iron, Steel Pipe

Base Price $200 Ton

Base Discounts on steel pipe, Pittsburgh and Lorain, O., to jobbers in carloads. Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago del., 2½ points less. Wrought pipe, Pittsburgh base.

BUTT WELD

	Steel			Iron	
In.	Blk.	Gal.	In.	Blk.	Gal.
½	58	44½	½	23	5
¾	62	50½	¾	28	11
1—3	64	52½	1—1¼	31	15
			1½—2	35	18

LAP WELD

2	57	45½	2	23	9
2½—6	61	49½	2½—3½	28	13
7—8	58	45½	4—6	30	17
9—10	56	43½	7—8	29	16
11—12	55	42½	9—12	26	11

BUTT WELD

Extra strong, plain ends

⅛	55	44½	¼ & ⅜	+13	+48
¼	60	49½	½	23	7
1—1½	62	51½	¾	28	12
2—3	63	52½	1—2	34	18

LAP WELD

Extra strong, plain ends

2	55	44½	2	29	13
2½—4	59	48½	2½—4	34	20
4½—6	58	47½	4½—6	33	19
7—8	54	41½	7—8	31	17
9—10	47	34½	9—12	21	8
11—12	46	33½			

To large jobbers these discounts on steel pipe increased on black by 1 point and two discounts of 5 per cent; on galvanized by 1½ points with two 5 per cents. Direct mill shipments, base, 5 and 2½. On iron pipe large jobbers obtain additional discount of 1 point with 5 and 2½ per cent on black and galvanized.

BOILER TUBES

Carload Discounts, f. o. b. Pittsburgh

Lap Welded Steel		Charcoal Iron	
2—2¼	38	1¾	8
2½—2¾	46	2—2¼	13
3	52	2½—2¾	16
3¼—3¾	54	3	17
4	57	3¾—3½	18
4½—6	46	4	20
1½	1	4½	21

On lots of a carload or more, above base discounts subject to preferential of two 5 per cent discounts on steel and 10 per cent on charcoal iron. Smaller quantities subject to following modifications from base discounts.

Lap Welded Steel—Under 10,000 pounds, 6 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and two 5 per cents. Charcoal Iron—under 10,000 pounds, 2 points under base; on 10,000 pounds to carload, base and one 5 per cent.

STANDARD COMMERCIAL SEAMLESS BOILER TUBES

COLD DRAWN

1 inch	61	3	46
1¼—1½	53	3¼—3½	48
1¾	37	4	51
2—2¼	32	4½, 5, 6	40
2½—2¾	40		

HOT ROLLED

2—2¼	38	3¼—3½	54
2½—2¾	46	4	57
3	52	4½, 5, 6	46

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed. No extra for lengths up to and including 24 feet. Sizes smaller than 1 inch and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Tubing

Cold drawn; f.o.b. mill discounts

Random lengths over 5 ft. 55%
Selected lengths, 1—18 ft. 53%

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

Six-inch and over, Bir. ....$33.00 to 35.00
Four-inch, Birmingham .... 37.00 to 39.00
Four-inch, Chicago ..... 43.00 to 46.00
Six to 24-inch, Chicago..... 40.00 to 43.00
Six-inch and over, N. Y..... 30.00 to 32.00
Four-inch, New York ..... 34.50 to 36.50
Stand. fittings, Bir. base.... $100.00

Six to 24-inch, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch plus $20; gas pipe fittings, $5 higher Class A pipe $4 higher than Class B.

Warehouse Quotations at Leading Centers, in Cents Per Pound

(All Philadelphia prices subject to quantity differentials except reinforcing and Swedish bars)

STEEL BARS

Baltimore	3.00c
Boston	3.265c
Buffalo	3.00c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Cleveland	2.75c
Detroit	2.85c
Houston	3.00c
Los Ang.	3.40c
New York‡(d)	3.10c
Philadelphia	2.60c
Pittsburgh	2.60c
Portland	3.15c
San Fran.	2.40c
Seattle	3.00c
St. Louis	3.00c
St. Paul	3.00c
Tulsa	3.25c

IRON BARS

Baltimore	3.25c
Boston	3.265c
Buffalo	3.15c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Detroit	2.85c
New York‡(d)	3.10c
Philadelphia	2.60c
St. Louis	3.00c
Tulsa	3.25c

REINFORC. BARS

Baltimore	2.50c-3.31c
Boston	3.10c-3.25c
Buffalo	2.95c
Chattanooga	3.00c
Cincinnati	3.00c
Cleveland	2.10-2.25c
Detroit	2.85c
Houston	3.00c
Los Ang. cl.	2.50c
Los Ang. lcl.	2.80c
New York	2.65c-3.10c
Phila.	2.40c-3.00c
Pittsburgh	2.60c
San Fran. cl.	2.60c
San Fran. lcl.	2.90c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.25c
Young.	2.30c-2.60c

SHAPES

Baltimore	3.00c
Boston	3.35c
Buffalo	3.25c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland	2.95c
Detroit	3.10c
Houston	3.25c
Los Ang.	3.40c
New York(d)	3.10c
Philadelphia	2.50c
Pittsburgh	2.85c
Portland	3.15c
San Fran.	2.40c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.10c
Tulsa	3.50c

PLATES

Baltimore	3.00c
Boston	3.365c
Buffalo	3.25c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland, ¼-in. and thicker	2.95c
Clev., 3/16-in.	3.20c
Detroit	3.10c
Det., 3/16-in.	3.10c
Houston	3.00c
Los Angeles	3.40c
New York(d)	3.30c
Philadelphia	2.50c
Phila. floor	5.10c
Pittsburgh	2.85c
Portland	3.15c
San Fran.	2.40c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.10c
Tulsa	3.50c

NO. 10 BLUE

Baltimore	3.25c
Boston	3.915c
Buffalo	3.50c
Chattanooga	3.50c
Chicago	3.20c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.35c
Houston	3.90c
Los Ang.	3.95c
N. Y. (d)	3.00c-3.40c
Portland	4.00c
Phila.*† (e)	3.05c
Pitts.**	2.60c to 2.85c
San Fran.	3.65c
Seattle	3.75c
St. Louis	3.45c
St. Paul	3.40c
Tulsa	3.70c

NO. 24 BLACK

Balt.*†	3.50c
Boston	4.70c
Buffalo	3.70c
Chattanooga	3.65c
Chicago	3.55c
Cincinnati	3.75c
Cleveland	3.60c
Detroit	3.50c
Los Ang.	4.70c
New York	3.50c-3.65c
Phila.*†(e)	3.55c
Pitts.**	3.40c
Portland	4.50c
San Fran.	4.15c
Seattle	4.25c
St. Louis	3.80c
St. Paul	3.545c
Tulsa	4.75c

NO. 24 GAL. SHEETS

Balt.*†	4.00c
Boston	5.45c
Buffalo	4.10c
Chattanooga	3.95c
Chicago	4.10c
Cincinnati	4.25c
Cleveland	4.00c
Detroit	4.00c
Houston	5.40c
Los. Ang.	5.10c
New York	4.00c-4.10c
Phila.*† (e)	4.00c
Pitts.**	4.00c
Portland	5.00c
San Fran.	4.65c
Seattle	4.75c
St. Louis	4.35c
St. Paul	4.23c
Tulsa	5.10c

BANDS

Baltimore	3.50c
Boston	3.75c-4.25c
Buffalo	3.35c
Chattanooga	3.20c
Chicago	2.95c
Cincinnati	3.20c
Cleveland	3.00c
Det. 3/16-in. & lighter	3.15c
Houston	3.65c
Los Ang.	4.30c
New York(d)	3.40c
Philadelphia	2.90c
Pittsburgh	2.95c
Portland	3.50c
San Fran.	3.75c
Seattle	3.50c
St. Paul	3.75c
Tulsa	3.45c

HOOPS

Baltimore	3.50c
Boston	4.90c-5.40c
Buffalo	3.90c
Chicago	3.50c
Cincinnati	3.75c
Cleveland	3.55c
Det. No. 14 & lighter	3.65c
New York	3.75c
Philadelphia	3.15c
Pittsburgh	3.60c
Seattle	4.90c
St. Paul	3.75c

COLD FIN. STEEL

Rounds & Hexagons

Baltimore (c)	3.30c
Boston	3.50c
Buffalo	3.15c
Chattanooga*	3.75c
Chicago	3.10c
Cincinnati	3.50c
Cleveland	3.10c
Detroit	3.40c
Los Ang. (a)	4.50c
New York	3.40c
Philadelphia*	3.40c
Pittsburgh	3.10c
Portland (a)	4.50c
San Fran.(a)	4.25c
Seattle (a)	4.50c
St. Paul (a)	3.85c
St. Louis	3.35c
Tulsa	4.65c

Flats and squares 50c extra, except Tulsa, where 5.14c is quoted. (a) Rounds, hex. only.

COLD ROLL. STRIP

Boston 0.100 in., 500 lb. lots	5.30c
Buffalo	5.65c
Chicago (soft) (b)	5.65c
Cincinnati	5.80c
Clev. (b)	5.55c
Detroit	5.40c
Phila. (c)	4.55c
New York	4.55c

(b) Net base straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.
(d) Minus quant. diff.
(e) New mill classif.
‡Domestic bars.
*Plus quantity extras.
**Less than 25 sheets.
*†50 or more bundles.

Pacific Coast

Cast Pipe Awards Largest in Several Weeks—Other Lines Are Quiet—Canadian Lettings Give Unusual Tonnage—Steel Pipe Line Inquiry Interests Plate Fabricators

Seattle—Interest this week centered in British Columbia, where more than 2000 tons of plates and cast iron pipe were awarded to Canadian firms, while bids are in for nearly 1000 tons additional of cast iron pipe. Business placed in Washington and Oregon was of comparatively small proportions.

Mill prices are unchanged, but the market is possibly a trifle weaker; it has had no real test in recent weeks. Wholesale jobbing prices continue unsettled at low levels, conditions being unsatisfactory and business in small tonnages. No important new projects have developed.

Bars, Plates and Shapes

The outlook for reinforcing bars is unpromising as construction is slow and no projects of importance are up for figures or contemplated. Mills are supplying the few small tonnages from stock. McNeil Island federal prison has placed about 100 tons with various suppliers, part with the Northwest Steel Rolling Mills, Seattle. Pioneer Sand & Gravel Co., Seattle, has booked 50 tons for a King county bridge, S. R. Gray, Puyallup, general contractor. About 150 tons for the American Lake veterans' hospital and about 100 tons for a grade separation, Seattle, are pending. New bids have been called for the latter job.

Two steel pipeline jobs for the Sooke and Goldstream water systems, Victoria, B. C., were placed this week. Vancouver Engineering Works Ltd., Vancouver, B. C., will furnish about 600 tons of 20-inch welded 5/16-inch line and steel specials. To the Victoria Machinery Depot Ltd., Victoria, went about 550 tons of 30-inch Hume pipe, ⅜-inch, also steel welded specials. No other plate jobs of consequence are pending.

Inquiry for structurals is not heavy. Hofius Steel & Equipment Co., Seattle, was awarded 70 tons for the frame of a proposed warehouse for Romano Engineering Co., Seattle. Unnamed interests have booked about 250 tons for the filtration plant at Eugene, Oreg. Spokane city engineer is drawing plans for a $1,000,000 steel span over the Spokane river, construction contingent on state aid.

Finished Material Dull

The wholesale jobbing trade remains unusually dull and prices weak. Inquiry is lacking and buying is in minimum lots. Prices have indicated no tendency to firm since jobbing houses here and in Portland established minimum lows. No item is showing much activity.

Washington state officials opened bids Oct. 29 for 160 tons of black sheets for 1932 automobile licenses. Additional contracts have been placed for installing railroad trackage at the Ford assembly plant involving about 125 tons of 90 and 100-pound new steel rails, furnished by Hofius Steel & Equipment Co., Seattle.

Pipe Tonnage Is Divided

Contracts to furnish approximately 1000 tons of cast iron pipe, 4 to 12-inch Classes C and D, with hydrants and other accessories, was divided by Victoria, B. C., officials among the following: Evans, Coleman & Johnson Bros. Ltd., Ramsey Machine Works Ltd. Victoria; Leith, Murray & Co. Ltd. and McLellan, McFeely & Prior Ltd., Vancouver, B. C. Bids for furnishing 46,000 feet of 4, 6 and 8-inch Classes C and D cast iron pipe were opened by Vancouver, B. C., this week and are being tabulated. Six British Columbia firms submitted offers on various alternatives. Pipe and accessories total approximately 1000 tons. American Cast Iron Pipe Co., through R. C. Polk, Seattle, has been awarded 175 tons of 8 to 14-inch centrifugal by Chehalis, Wash.

Coast Pig Iron Prices

Utah basic	$22.00 to 24.00
Utah foundry	22.00 to 24.00
*German	24.25
*Indian	22.00 to 24.00

*C.i.f. duty paid.

Pipe Gives Most Tonnage

San Francisco—(*By Air Mail*)—Few awards of importance were placed during the week and conditions generally have shown little improvement. Plate fabricators are interested in bids for an emergency pipe line for the Hetch Hetchy project, San Francisco, involving close to 7000 tons of plates. Bids will be opened early in November. No change has occurred lately in prices.

Bars, Plates and Shapes

Only two reinforcing steel bar awards in excess of 100 tons were reported. Unnamed interests secured 326 tons for highway work in Los Angeles county and 125 tons for the Pasadena-Post building, Pasadena, Calif. Bids have been opened on 500 tons for hangars and shops at Wheeler Field, T. H. New inquiries were confined to small lots. Prices in the San Francisco and Los Angeles districts on warehouse material remain unchanged at 2.60c and 2.50c, base, on carload lots, respectively. Movement of mild steel bars is restricted to less than carload shipments. On this class of material, 2.05c, c.i.f., is general.

Bids have been opened on 782 tons of plates for a siphon for the Hetch Hetchy project, San Francisco, on which MacDonald & Kahn were low bidders for the general contract.

While a number of small structural projects were placed only two awards of over 100 tons were noted. International Derrick & Equipment Co. secured 250 tons additional for a bridge at Boulder City, Nev., and an unnamed interest booked 200 tons for the Pasadena-Post building, Pasadena, Calif. Bids have been opened on 1100 tons for hangars and shops at Wheeler Field, T. H., and on 198 tons for two bridges in San Benito County, Calif. Inquiries include 1100 tons for a men's gymnasium at the University of California, Berkeley.

Other Finished Material

Cast iron pipe awards aggregated 2538 tons, the largest week booking in over a month. This brought the total for the year to 59,682 tons, compared with 69,288 tons for the corresponding period in 1930. While public lettings continue to hold up well, little private buying has been done this year. The United States Pipe & Foundry Co. took 1725 tons of 6 to 20-inch Class B pipe for Long Beach, Calif. Unnamed interests booked 125 tons of 6-inch pipe for Grand Canyon, Ariz. Bids have been opened on 208 tons of 6 and 8-inch pipe for Glendora, Calif.

Movement of sheets is confined to small lots for immediate shipment and consumers are buying only for current requirements. Prices on No. 24 galvanized sheets hold at 3.38c, c.i.f., No. 24 hot-rolled sheets are quoted at 2.88c and No. 10 blue annealed sheets are firm at 2.33c, c.i.f.

Europe

Results of British Election on Business Awaited—Tariff Believed Certain—Prices Easy

London—(*By Cable*)—Sweeping victory of the government in the general election, with the heavy conservative majority, should give business an impetus. Adoption of a protection policy is a certainty with iron and steel tariffs almost certainly included. Markets are quiet. Continental billets are being delivered at £4 12s 3d and bars at £5 4s, in anticipation of benefits from a tariff. Sterling depreciation is of benefit to the pig iron export trade. A Cleveland bridge company has been given the contract for a bridge in Bermuda.

Canadian users are buying steel bars. Galvanized sheets are weak. Tin plate demand is moderate, with mills operating at 60 per cent.

Continental markets are awaiting the effect of the British election on business. In the meantime prices are easy and business generally is dull. Signs of British competition with Continental producers are appearing. Orders from India and the Far East have been booked by Belgian and German makers.

Broader Demand Opens in British Steel Market

Birmingham, Eng.—There are definite signs of a broadening of demand, especially in the north of England.

An additional furnace to make steelworks iron has been put into operation at the Cargo Fleet Co. plant and Dorman, Long & Co. intend to blow in shortly a furnace on hematite. Of 88 stacks in this area only 18 are at work, six making Middlesbrough pig iron, four hematite and the others various kinds of iron. More sales of Middlesbrough pig have been made to firms in Scotland.

Considerable business in hematite is being put through but prices are unchanged. Most sales are direct from producer to consumer in this country but there is a moderate volume of export business. Middlesbrough ironmasters are now well sold to the end of the year and could make further commitments but production costs are rising and they consider the position much too uncertain to sell beyond that point.

A North Staffordshire furnace which has been making basic pig is changing over to foundry and another furnace is being started at Leeds. In the Midlands arrangements are being made to start a furnace on basic.

Export Business Increasing

So far the improvement at forges and foundries has been moderate. The depreciation of sterling, however, has allowed exporters to do business abroad where formerly it was impossible. On the West coast a brisk demand for hematite is maintained but there has been no move to increase the number of furnaces, though demand is now in excess of output. Prices are firm but not quotably higher.

Galvanized sheets are a shade easier for, although £9 15s ($37.83) is regarded as the basis price, it has been possible to place business below this figure. This is due to the keen struggle to fill order books. Export business is reported better this quarter than last and an encouraging feature is that September shipments showed that the decline has been checked.

Bar Prices Are Firmer

Events of the last few weeks have given a little impetus in some sections of the steel trade, sufficient to firm prices for small steel bars and soft billets. In heavy material there is no change from dull conditions which have prevailed through the year. Structural work is on a moderate scale and engineers specify small lots which the mills quickly dispose of with the result that Midland works are idle half the week. On the northeast coast a small improvement has been experienced and some substantial orders are pending. It is an encouraging sign that the scrap market is showing more life and traders have been able to realize higher prices.

Confusion surrounds the market for Continental materials and while a few quotations have been received

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, Oct. 29 (a)	British gross tons U. K. ports		Continental metric tons Channel or North Sea ports	
Export Prices f.o.b. Ship at Port of Dispatch—By Cable (or Radio)				
PIG IRON				
Foundry, 2.50-3.00 Silicon	$11.32	£ 2 18 6	$8.71 to $9.09	£ 2 5 0 to 2 7 0
Basic bessemer	11.61	3 0 0*	7.93 to 8.13	2 1 0 to 2 2 0
Hematite, Phos. .03-.05	12.58	3 5 0	.....	.....
SEMIFINISHED STEEL				
Billets	$20.32	5 5 0	$10.84 to $11.03	2 16 0 to 2 17 0
Wire rods, No. 5 gage	32.90	8 10 0	19.35 to 20.32	5 0 0 to 5 5 0
FINISHED STEEL				
Standard rails	$31.93	8 5 0	$22.74	5 17 6
Merchant bars	1.21c	7 0 0	.56c to .57c	3 2 0 to 3 3 0
Structural shapes	1.34c	7 15 0	.53c to .54c	2 19 0 to 3 0 0
Plates, †¼-in. or 5mm.	1.43c	8 5 0	.64c to .65c	3 12 0 to 3 12 6
Sheets, black, 24 gage or 0.5mm.	1.51c	8 15 0	1.35c to 1.37c	7 10 0 to 7 12 6
Sheets, gal., 24 gage, corr.	1.67c	9 12 6	1.44c to 1.46c	8 0 0 to 8 2 6
Bands and strips	1.64c	9 10 0	.70c to .72c	3 18 0 to 4 0 0
Plain wire, base	1.47c	8 10 0	.91c	5 1 3
Galvanized wire, base	1.90c	11 0 0	1.11c	6 3 9
Wire nails, base	1.90c	11 0 0	.92c	5 2 6
Tin plate, box 108 lbs.	$ 2.81	0 14 6	$2.55	0 13 2‡

British ferromanganese £20 10s 6d ($79.43) delivered Atlantic seaboard, duty-paid. German ferromanganese £9 0s 0d ($34.83) f.o.b.

Domestic Prices at Works or Furnace—Last Reported

	£ s d	French Francs		Belgian Francs		Renten Marks	
Fdy. pig iron, Si. 2.5	$11.32	2 18 6	$10.84	275(2)	$11.48	410	$18.49	78
Basic bessemer pig iron	11.61	3 0 0*	.....	.....	10.64	380	20.26	85.50
Furnace coke	2.13	0 11 0	5.71	145	5.18	185	5.07	21.40
Billets	20.32	5 5 0	19.31	490	14.98	535	26.19	110.50
Standard rails	1.43c	8 5 0	1.41c	785	1.57c	1,210	1.36c	127
Merchant bars	1.21c	7 0 0	.90c	500	.73c	560	1.37c	128
Structural shapes	1.51c	8 15 0	.99c	550	.72c	550	1.34c	125
Plates, †¼-in. or 5mm.	1.56c	9 0 0	1.26c	700	.88c	675	1.65c	154.50
Sheets, black, 24 ga. or 0.5mm.	1.51c	8 15 0	2.09c	1,160	1.82c	1,400	2.73c	255
Sheets, galv., corr., 24 ga. or 0.5mm.	1.69c	9 15 0	2.39c	1,325	2.08c	1,600	4.39c	410
Plain wire	1.47c	8 10 0	1.68c	935	1.95c	1,500	2.21c	207
Bands and strips	1.64c	9 10 0	1.13c	625	1.04c	800	1.58c	148

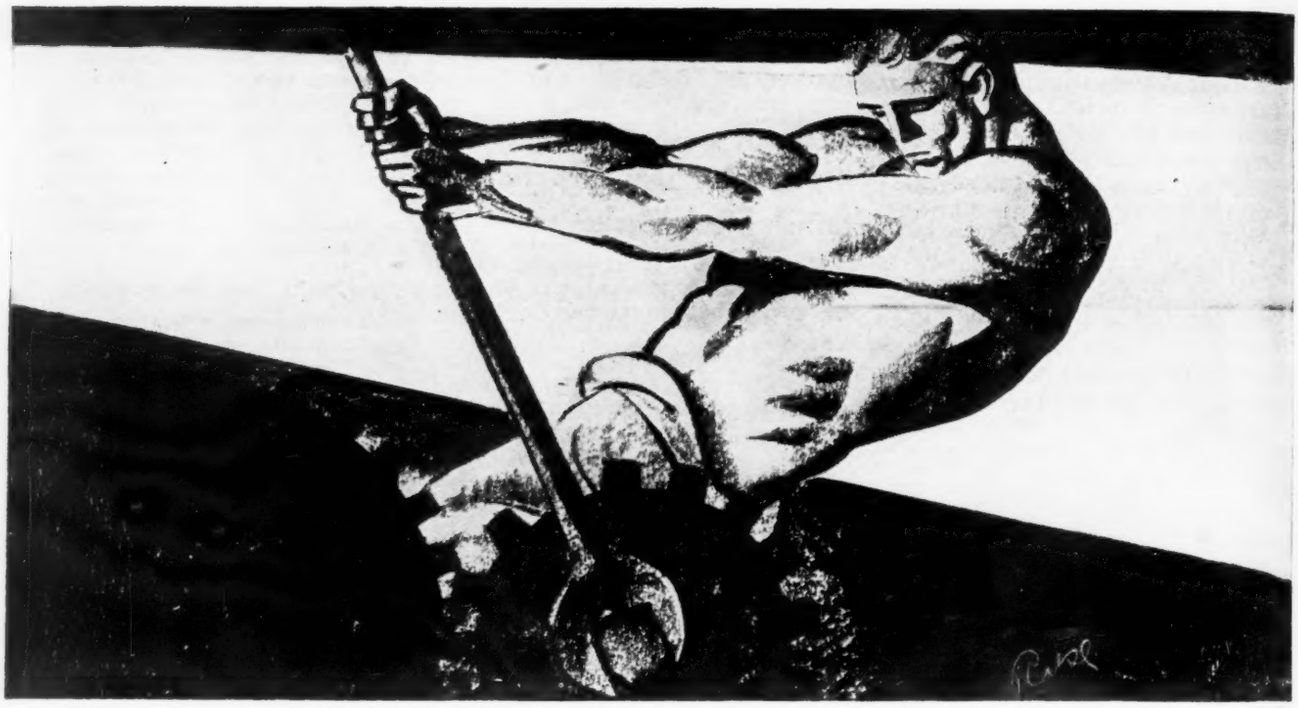
*Basic. †British ship-plates, Continental bridge plates. ‡German.

British quotations are for basic open-hearth steel, Continental usually for basic-bessemer steel.

(a) This week the lower exchange rate for sterling is used in computing British prices, depressing them abnormally. It is suggested in the cable from London that British producers will advance their quotations to neutralize this artificial decline in their prices.

THE COUPLINGS

that were strained more in assembly than in use



how accurate analysis of a bolting problem saved money for an R B & W customer

HOW a maker of patented couplings for high-pressure hose lines was producing a better product than was necessary forms an interesting story from a recent investigation by the R B & W Engineering Service.

This man had a fine product—one of the very best in its field. He had developed it himself out of an experience in practical mechanics, and was successful, without having had any general technical or engineering training.

After a few purchases of R B & W bolting material, our customer requested higher strength bolts, requiring higher priced steel to make them. Still he was not satisfied, complaining of bolt failure in the assembly of his product. So we went to take a look at his operations.

His strength test in his assembly was that which withstood the pull of 3-foot wrenches wielded by brawny mechanics. Under those conditions his wrenches applied a load on the bolts of from 146,000 to 175,000 pounds per square inch, a test far greater than his product would ever have to meet in actual service.

An accurate estimate of the service strength needed for his product led to a reduced bolting material strength, followed by lower costs.

Many manufacturers have saved time and money by an analysis of their bolting material requirements by the R B & W Engineering Service. If you have a problem in this field, write us about it.

RUSSELL, BURDSALL & WARD BOLT & NUT CO.

PORT CHESTER, N. Y.
ROCK FALLS, ILL.
CORAOPOLIS, PA.

Sales Offices at Philadelphia, Detroit, Chicago, San Francisco, Los Angeles, Seattle, Portland, Ore.

this week on the sterling basis consumers consider the position contains too great an element of risk to allow placing of business on any large scale.

French Market Depressed, Prices too Low, Output Cut

Paris—The French iron and steel market is distinctly depressed, and the position is becoming more and more difficult. In view of the low prices prevailing, mills find themselves compelled further to curtail production, and certain works are contemplating a reduction of 50 per cent on the figures of previous months. Anxiety is further beginning to be felt with respect to the effects of this serious restriction of output on unemployment, especially at the beginning of the winter, and also in view of the fact that other industries are curtailing activities.

A number of metallurgical works are experiencing serious financial difficulties, more particularly the Trefileries de Havre, which has been seriously hit by the failure of Societe Electro Cable and by the drop in the price of copper, the Acieries de Firminy, which has been hit by liquidation of the comptoir de Lyon-Allemande, and Electro-Metallurgique de Dives, with the result that these works are now selling at extremely reduced prices to obtain cash.

No modifications have been made in comptoir prices and merchant bars continue to be quoted at 500 francs ($19.65), while beams are 550 francs ($21.65). There is some confusion in semifinished steel. Second-grade billets in soft steel are sold at 350 francs ($13.80), and standard material at from 380 to 390 francs ($15.40 to $18) at works in the east.

European Steel Markets Meet Further Adverse Factors

EVENTS moved swiftly in Europe during the latter part of the summer, and the climax arrived Sept. 20 with the pound sterling going off the gold standard. This move had as its first result a complete rupture of equilibrium, as far as trade conditions betwen Great Britain and other countries are concerned.

Almost immediately British products, including iron and steel, could be offered at competitive prices in markets where these commodities barely stood a chance against competition from Germany, Belgium and France. Conversely, the continental countries have seen their exports restricted.

Interest has centered on Great Britain and results of the general election are taken as an indication of stability as the national government has been sustained by a decisive majority. Socialistic principles have been set back definitely and a tariff in some form is almost a certainty. Reactions on trade relations with other countries brought about by depreciation in the pound sterling and a tariff are difficult to forecast.

A brief review of the position of the leading countries of Europe at the end of the eight-month period terminating Aug. 31 should be of particular interest, as it will show how these countries stood just before sterling left gold parity. Steel production will serve as an illustration.

In Great Britain, the output of steel in eight months was 3,436,100 gross tons, compared with 5,434,400 tons for the corresponding period of last year, a decrease of 36.6 per cent. For Germany the figures were 6,110,294 metric tons and 8,384,527 tons respectively, a reduction of 27.1 per cent. In France the decrease was only 14.5 per cent, with an output of 5,455,000 metric tons, against 6,380,000 tons in the same period of 1930. For each of these three countries production was at a lower rate at the end of the eight months than at the beginning of the year. Britain's output decreased most, owing largely to restriction of exports. France suffered the smallest reduction, having maintained fair activities within the home market.

(The accompanying article is STEEL'S usual quarterly review of the European iron and steel markets.)

A curious position obtains with respect to Belgium and Luxemburg. Belgium's output of steel since the beginning of the year has dropped by 16.5 per cent, but from February to July production increased from one month to another and for June and July was actually higher than in the corresponding months of 1930.

In Luxemburg the output was reduced by only 10.2 per cent and there again the monthly figures for June and July were higher than in those months last year. This is ascribed to the fact that Luxemburg and Belgian works are anxious to maintain a high level of production in order to hold a strong position when the steel entente is definitely reorganized.

A feature of the moment is that export prices quoted for iron and steel by European countries generally leave no margin of profit, and in many cases result in loss. In Britain, France and Belgium domestic prices also are below economic level. In all countries, activities during third quarter slowed down, numbers of men were thrown out of employment and works closed.

British Exports Fall Off

British exports of iron and steel since the beginning of the year have fluctuated, but for each month so far shipments have been substantially less than in the corresponding month of 1930. On the other hand, from June onward imports have been higher. For eight months ending Aug. 31, total exports of iron and steel were 1,311,671 gross tons, compared with 2,319,812 tons in the corresponding period of 1930, a decrease of 43 per cent. Imports decreased only from 1,927,231 tons to 1,709,714 tons, or 11.25 per cent.

The position is best seen by the fact that during the period considered in 1930, exports exceeded imports by 392,581 tons, whereas this year, imports exceeded exports by 398,043 tons, showing that in view of the restricted world demand and the falling off of continental prices, Britain was less able to compete.

Stagnant conditions in Germany are causing grave anxiety in all other countries. The only hopeful feature is the loan recently issued by the railroad corporation, part of which will be used for financing orders for steel and equipment using steel in its manufacture. Some wage reductions have been made, particularly in the coal mines, and unemployment figures are growing.

Uncertainty Hobbles Business

Undoubtedly Germany and Great Britain are the two leading countries which, in Europe, are suffering most from the present crisis. Conditions in the other countres did not change much during third quarter. The situation is generally unsatisfactory in a greater or lesser degree, but everywhere trade is restricted and new business held back, owing to uncertainty.

Events now taking place in the United States, Great Britain Germany and France are of paramount importance, and before the year comes to an end it will probably be possible better to forecast future tendencies.

Steel River Shipments Up Slightly at Pittsburgh

(*Concluded from Page 28*)

ber. Comparative monthly figures follow:

1930	Allegheny	Monongahela	Ohio
Sept.	5,100	106,079	109,129
9 mo.	10,935	911,325	952,750
Oct.	11,490	105,451	138,109
Nov.	17,850	75,202	95,644
Dec.	3,800	46,972	50,403
Year	44,075	1,133,950	1,236,906
1931			
Jan.	50	90,405	88,089
Feb.	.....	58,847	75,264
March	.....	76,137	104,792
April	1,250	57,751	91,570
May	1,330	35,373	59,611
June	500	21,340	46,945
July	717	21,917	39,300
August	5,800	14,522	49,164
Sept.	8,525	25,508	49,269
9 mo.	18,172	401,800	604,004

Automobile Output Down; September 140,566 Units

Almost touching the low of the depression set in November, 1930, September's automobile output was 140,566 units, of which 109,087 were passenger cars. The monthly decline has been consecutive since April. Suspension of assembly due to inventories and preparations for manufacture of 1932 models is in large part the cause of September's recession. Department of commerce figures follows:

	—United States—			Canada
1930	Total	Passenger cars	Trucks	Total
Sept.	220,649	177,752	41,967	7,957
9 mo.	2,909,130	2,441,218	416,592	138,622
Oct.	154,401	115,476	38,343	4,541
Nov.	135,754	102,358	33,787	5,407
Dec.	155,701	122,748	31,528	5,622
Year	3,355,986	2,805,516	541,534	154,192
1931				
Jan.	171,851	137,805	33,534	6,496
Feb.	219,939	179,890	39,520	9,871
Mar.	276,341	230,835	45,096	12,993
April	336,939	286,252	50,022	17,159
May	317,163	271,135	45,688	12,739
June	250,657	208,955	41,342	6,835
July	218,961	182,927	35,854	4,220
Aug.	187,197	155,321	31,772	4,544
Sept.	140,566	109,087	31,338	2,646
9 mo.	2,119,188	1,764,353	351,594	77,502

Canadian Iron, Steel Off Sharply in September

Toronto, Ont.—Production of steel ingots and direct steel castings in September in Canada totaled 33,390 tons, 36 per cent below the 52,491 tons of August and the lowest for any month since August, 1925. For nine months ending with September, output of steel ingots and castings was 592,855 tons, compared with 818,471 tons in the similar period of 1930.

September output of pig iron in Canada was 17,585 tons, against 23,212 tons in August and 49,395 tons in September, 1930. For nine months, output of pig iron was 308,322 tons, against 622,716 tons a year ago. September output of ferroalloys in Canada was 5700 tons, compared with 8248 tons in August.

In September, stacks at Port Colborne and Sault Ste. Marie, Ont., were blown out, leaving one stack of the Steel Co. of Canada at Hamilton, Ont., the only Canadian stack in blast as of Sept. 30.

Structural Orders Rebound; Highest In Five Months

The encouraging gain in bookings of structural shape fabricating interests places September's total highest since April. Bookings during the former month were at 49.2 per cent of the capacity of all plants, based on actual report from 235 concerns. September shipments worked down as a result of depressed bookings in midsummer, as the following compilation of the department of commerce shows:

	Bookings		Shipments	
1930	Tonnage	Per cent capacity	Tonnage	Per cent capacity
Sept.	155,600	38.9	243,200	60.8
9 mo.	2,176,400	60.5	2,384,400	66.2
Oct.	209,200	52.3	239,200	59.8
Nov.	151,200	37.8	195,200	48.8
Dec.	152,800	38.2	168,400	42.1
Year	2,689,600	56.0	2,987,200	62.2
1931				
Jan.	162,400	40.6	172,000	43.0
Feb.	158,400	39.6	166,400	41.6
Mar.	184,400	46.1	151,200	37.8
April	292,800	73.2	158,400	39.6
May	152,800	38.2	148,000	37.0
June	177,200	44.3	162,400	40.6
July	159,200	39.8	181,600	45.4
Aug.	124,400	31.1	168,800	42.2
Sept.	196,800	49.2	150,000	37.5
9 mo.	1,608,400	44.7	1,458,800	40.5

Truck and Tractor Exports Fall in September

At a second low for 1931, September shipment of electrical industrial trucks and tractors underwent recession from August chiefly in the export classification. Report of ten leading makers to the department of commerce shows 9-month total practically 50 per cent under 1930:

		—Shipment—	
1930	Total	Domestic	Export
September	81	75	6
9 mo.	1,032	910	122
October	93	90	3
November	45	36	9
December	51	42	9
Year	1,191	1,050	141
1931			
January	38	33	5
February	56	50	6
March	93	84	9
April	71	48	23
May	69	69	.....
June	75	50	25
July	78	63	15
August	50	37	13
September	43	39	4
9 mo.	573	473	100

Five-Month Steady Drop In Steel Furniture Orders

Orders for steel furniture continued to decline in August, when orders placed were valued at $1,009,506, by report of 52 establishments to the department of commerce. Shelving orders and shipments in both groups were further depressed. Comparisons follow:

(In Dollars, 000 Omitted)

	Business Group		Shelving	
1930	New orders	Shipments	New orders	Shipments
Aug.	1,725	1,928	579	604
8 mo.	17,390	18,266	6,174	6,169
Sept.	1,796	1,854	553	542
Oct.	1,833	1,902	587	645
Nov.	1,587	1,632	468	502
Dec.	1,591	1,774	283	515
Year	24,198	25,429	8,065	8,374
1931				
Jan.	1,840	1,768	417	422
Feb.	1,478	1,563	401	382
March	1,487	1,522	455	481
April	1,424	1,481	408	423
May	1,306	1,305	506	409
June	1,272	1,221	452	449
July	1,092	1,074	328	371
Aug.**	1,010	1,056	307	358
8 mo.	10,909	17,391	3,276	3,295

**Preliminary.

Machine Tool Orders Drop to New Low

After August's encouraging increase actual orders for machine tools for September reverted to a new low at a total for all three classes of 56.8. This is even below the July figure of 61.5, according to the National Machine Tool Builders' association. September's decline was confined to the machinery in "A" and "C" classes, as the following index comparison of actual gross orders shows:

1930	*Index A	*Index B	*Index C	Total
Sept.	129.7	138.8	215.9	135.9
Oct.	81.3	112.3	118.1	90.1
Nov.	56.0	67.8	96.6	60.4
Dec.	58.4	92.7	126.6	68.8
Yr. av.	119.8	146.4	164.7	127.8
1931				
Jan.	64.6	75.1	68.6	66.9
Feb.	68.3	129.8	93.1	83.7
March	109.2	133.4	180.9	117.6
April	97.7	130.3	95.0	105.1
May	81.4	104.5	105.7	87.2
June	74.3	70.3	80.7	73.6
July	52.1	95.4	66.1	61.5
Aug.	69.6	72.5	105.0	71.7
Sept.	50.2	73.9	72.2	56.0

*Note—Index A, base over $50,000; Index B, bases $10,000 to $50,000; Index C, base less than $10,000. Base: average shipments for years 1922-23-24. Totals: The total of all reports is not an average of A, B and C, but the sum of each item in percentage of the total base.

Republic Steel Corp., Youngstown, O., has ordered three 300-horsepower adjustable speed motors with control apparatus from the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. The motors will furnish the drive for rolling cold strip stock of stainless steel at the Massillon, O., plant.

ADVISED SHARON SPECIFICATIONS

THUS . . . . . BREAKAGE WAS ELIMINATED

The fabricator was "stumped" — A burr on the sheared edge of the steel strip was causing trouble — splits and breaks. Something wrong with the steel, he thought, naturally. But "Sharon Specifications" discovered a different, more logical cause. ▼ Nothing wrong with the steel. "Sharon Specifications" had originally developed it *definitely* for this important automobile part. A simple remedy was proposed — turn the blanks over, with the burr to the inside. There was no more breakage trouble. ▼ Often the careful scrutiny of Sharon's engineers finds in the manufacturer's own plant the real solution to puzzling, costly problems. Just one of the benefits to be derived from taking advantage of "Sharon Specifications" — a thorough engineering service inseparably associated with Sharon's high grade strip and sheet steel. Send us the details, and experience the benefits of "Sharon Specifications" on your product problem.

SHARON STEEL HOOP CO.—SHARON, PA.

Strip Steels
Hot and Cold Rolled
—
"Nevastain"
Stainless Steels
—
Steel Sheets

SAVE WITH STEEL

Mill Products

Base price cents per pound f.o.b. mill except otherwise specified. Copper and brass product prices based on 7.25c, Conn., for copper

Sheets	
Yellow brass (high)	13.00
Copper, hot rolled	16.12½
Lead, full sheets (cut ½c more)	8.50
Zinc sheet (100-lb. base)	9.00
Tubes and Pipes	
Seamless yellow brass (high)	16.25
Seamless copper	15.62½
Rods	
Yellow brass (high, full turnings)	11.25
Naval brass	12.37½
Anodes	
Copper, untrimmed	12.62½
Wire	
Yellow brass (high)	13.50

Old Metals

Dealers' buying prices, cents lb.

No. 1 Composition Red Brass	
New York	4.00 to 4.25
Chicago	3.50 to 3.75
Cleveland	4.25 to 4.50
St. Louis	4.00
Heavy Yellow Brass	
New York	2.50 to 2.75
Heavy Copper and Wire	
New York	5.00 to 5.25
Boston	4.75 to 5.00
Chicago	4.00 to 4.25
Cleveland	4.00 to 4.25
St. Louis	4.25 to 4.50
Composition Brass Borings	
New York	3.75 to 4.00
Yellow Brass Tubing	
Cleveland	2.50 to 2.75
Light Copper	
New York	4.00 to 4.25
Chicago	3.50 to 3.75
Cleveland	3.75 to 4.00
St. Louis	4.00
Light Brass	
Boston	1.75 to 2.50
Chicago	2.00 to 2.25
Cleveland	1.75 to 2.00
St. Louis	2.25
Zinc	
New York	1.00 to 1.25
Cleveland	1.00 to 1.25
St. Louis	1.50
Aluminum	
Clippings, new, soft, Cleve.	11.00 to 11.50
Clippings, hard, Cleveland	8.00 to 9.00
Borings, Cleveland	3.00 to 3.25
Mixed cast, Cleveland	3.75 to 4.00
Mixed cast, Boston	3.25 to 3.50
Mixed cast, St. Louis	4.00

Secondary Metals

Remelt aluminum No. 12'	8.50 to 9.50
Brass ingots, 85-5-5-5	7.37½

Metals

Copper Steady Pending Outcome of World Conferences—Lead Is More Active

New York—Steadiness prevailed in the nonferrous metals this week with the exception of zinc. Lead has been in active demand. Copper prices have been steady although demand is less pronounced, particularly from foreign consumers. Zinc has eased off to still lower levels.

Copper—The copper market appears to be in a waiting position pending outcome of the curtailment conferences of world producers. Domestic consumers are placing only small tonnages. Foreign consumers seem to be well supplied and exports have fallen off sharply. Considerable interest is being evidenced in the hearings on a proposed tariff on copper now under way in Washington. A duty of six cents is asked. Prices remain steady with electrolytic metal quoted 7.00c, Connecticut and 7.50c, c.i.f. European ports.

Tin—The market has been remarkably steady this week with prices showing little or no fluctuation. Apparently the operation of the producers' tin pool abroad to stabilize prices has been affecting the market both here and in London. Demand from domestic consumers remains light.

Lead—Heavy buying at the beginning of the week brought about a firmer tone which resulted in advances at both East St. Louis and New York. Most users have been represented in the market this week. While some consumers indicated deliveries into 1932, producers restricted their bookings to prompt through December delivery. Lead sheet and pipe have been advanced a quarter cent.

Zinc—Buyers' interest continues to lag and quotations generally are regarded nominal. Prices show further easiness as the result of pressure to make sales, now being below the low levels of last June. Several producers remain out of the market due to current low quotations.

Antimony—The market is devoid of buying interest and prices are off slightly from recent levels.

Silver—A somewhat firmer situation obtains in silver. Buying has been for Indian account.

Aluminum—Prices continue unchanged with demand generally low.

Distillate Prices Firm, With Output Reduced

New York—Distillate prices are firm, current production being scarcely large enough to meet immediate needs, although buying is not heavy. Naphthalene sales are light, consumers covering slowly for next season. Contracting for most

Coke By-Products

	Spot
Per Gallon, Producers' Plants, Tank Lots	
Pure benzol	$0.20
90 per cent benzol	0.20
Toluol	0.30
Solvent naphtha	0.26
Commercial xylol	0.26
Per Pound at Producers' Plants in 250-Pound Drums	
Phenol	0.16 to 0.17
Per Pound at Producers' Plants in	
Naphthalene flakes	3.75 to 4.75
Naphthalene balls	4.75 to 5.75
Per 100 Pounds Atlantic Seaboard	
Sulphate of ammonia	$1.30

by-products is slower than usual. While demand for phenol is largely routine, a fairly satisfactory volume is moving at unchanged prices. Sulphate of ammonia is nominally unchanged, but volume is light with some shading. Prices of imported material are quoted under domestic material.

Quicksilver Now $74

New York—Quicksilver is in fair demand but quoted slightly lower at $74 a virgin flask in small spot lots.

Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Straits Tin New York Spot	Straits Tin New York Futures	Lead N. Y.	Lead East St. L.	Zinc St. L.	Aluminum 98-99%	Spot Antimony	Ingot Nickel
October 24	7.00	7.37½	6.87½	22.75	23.25	3.75	3.52½	3.27½	22.90	6.55	35.00
October 26	7.00	7.37½	6.87½	22.87½	23.25	3.77½	3.57½	3.27½	22.90	6.55	35.00
October 27	7.00	7.37½	6.87½	22.87½	23.25	3.82½	3.62½	3.25	22.90	6.50	35.00
October 28	7.00	7.37½	6.87½	22.87½	23.25	4.00	3.80	3.22½	22.90	6.50	35.00
October 29	7.00	7.37½	6.87½	22.75	23.15	4.00	3.80	3.17½	22.90	6.50	35.00
October 30	7.00	7.37½	6.87½	22.75	23.15	4.00	3.80	3.12½	22.90	6.50	35.00

A BIRD in the HAND...

YOUR CASTINGS . . . *made with Charcoal Pig Iron have* GREATER DENSITY • ADDED TOUGHNESS • MORE STRENGTH • LESS SHRINKAGE • LESS SCRAP LOSS • GREATER UNIFORMITY • EASIER MACHINABILITY . . . *and you get higher quality finished products.*

One sound, long-wearing casting is worth two that reach the scrap pile before their time.

Castings that break down under strain, or wear out under hard usage—these are bad investments.

But you can make sure of avoiding such imperfect castings very easily. Just specify a small percentage of charcoal pig iron in the mix when you order castings from your foundry.

Then you'll get castings that are tougher . . . longer wearing . . . denser . . . free from checks and other defects . . . easier to machine. And your foundry will have less scrap loss.

Always include this sentence in your castings specifications; "All castings must contain not less than 15% to 20% Superior Charcoal Pig Iron".

SUPERIOR CHARCOAL IRON COMPANY
Grand Rapids, Mich.
Debevoise-Anderson Co., Inc., *Eastern Representative*
New York • Boston • Philadelphia

Superior Charcoal Pig Iron

Machinery

ALTHOUGH orders and inquiries are scarce and relatively unimportant, a more hopeful tone prevails this week—particularly in Pittsburgh. Improved volume of sales of jig bushings and other details involved in early stages of extensive retooling programs is interpreted as a favorable sign. Machinery repair parts also are moving at a better rate. The automobile situation is being watched with close attention, in continued expectation that from that source will come the first really substantial machine tool orders. As passing weeks fail to bring resumption of Russian buying, lack of this business becomes painfully apparent in many machine tool building plants.

New York—Machine tool inquiry continues to be light on account of the dullness which prevails in practically all branches of industry toward which machine tool builders ordinarily look for business. A few sales are being made, mostly of single tools, parts or accessories. Dearth of inquiries now before the market indicates continuance of this condition for several weeks.

A few inquiries from government departments are out, included in which are two engine lathes for Brooklyn, these being the larger units of the list issued some weeks ago. The original bids on these machines were rejected. Announcement has been made that two Baltimore dealers are the low bidders on a boring machine and lathe for Washington. For the Brooklyn yard the navy department is taking bids, to close Nov. 3, on two milling machines and a lathe.

Operations in most of the ball bearing plants in southern New England continue to hover around 40 per cent. Their export business is particularly dull.

Worcester, Mass.—With the exception of opening of bids by the government on lathes for navy yard shops, the domestic machinery market shows little activity. The slump in production, noticeable when the last of the large orders from Russia was completed, now is accentuated by a lack of recovery in domestic business.

There practically is no current demand for lathes aside from that of the navy. Even the grinder business has been slow to reflect the upturn reputed to have started in the Detroit district several weeks ago. What increased momentum the machine tool industry is to be given by automobile makers this year is problematical.

Sleeper & Hartley is hastening to completion a milling machine of unusually large size which is going to Russia. Details of its unique design are being withheld pending completion of the unit.

Pittsburgh—October showed a definite, although decidedly moderate, improvement in sales compared with September and the hopefulness of the outlook has further been enhanced by slightly more activity in inquiry.

A number of projects which have been dormant for a number of months are being revived and prospects for further improvement in sales during November are regarded as fairly good. However, there continues to be a notable absence of large lists in pending work and new inquiry, while the majority of orders are made up of single tools.

Cleveland—While a distinctly better tone prevails in machinery circles, it is difficult to find any definite basis for it in terms of actual orders. The usual trickle of orders for single machines is about all the business which actually is materializing, and this only through most persistent sales effort.

There are certain indicators which point to improvement, according to those experienced in detecting trends. One in particular is a gain in the sale of jig bushings and other details entering into retooling projects.

Chicago—Machine tool builders and dealers continue to find it difficult to close any business of consequence in this territory. Lists which have long been pending, continue to be held up and it appears almost certain that in most cases they will be carried over into 1932.

There is some activity toward tooling up on new models by automotive interests but retooling of existing equipment seems to be much more common than purchase of new.

Crane Orders Showed Gain But Value Declined

New York—While new orders increased by two units, shipments and dollar values on unfilled orders are lower, according to the monthly figures compiled by Overhead Electric Crane institute for September. Shipments totaled 26 units with a tonnage capacity of 789 valued at $235,002.60. This compares with 31 units, tonnage capacity 773 valued at $345,213 shipped in August.

New orders included 13 units with a tonnage capacity of 123, valued at $84,318. In August new orders covered 11 cranes with a tonnage capacity of 171½ valued at $91,030. Unfilled orders on Oct. 1 included 42 units, tonnage capacity 1336½, valued at $580,598. This compares with 55 units with tonnage of 2057½, valued at $735,507.60 on Sept. 1.

Exports of Metalworking Machinery

	—September—		January through September	
	1931	1930	1931	1930
Engine lathes	25	44	449	950
Turret lathes	3	20	200	352
Other lathes	69	30	570	552
Vertical boring mills and chucking machines	17	23	209	266
Thread-cutting and automatic screw machines	20	46	203	553
Knee and column type milling machines	13	19	135	269
Other milling machines	42	28	404	589
Gear-cutting machines	47	35	356	339
Vertical drilling machines	22	39	251	417
Radial drilling machines	3	.....	111	143
Other drilling machines	166	115	1487	1327
Planers and shapers	23	17	257	285
Surface grinding machines	10	4	141	161
External cylindrical grinding machines	46	20	327	446
Internal grinding machines	25	8	235	268
Tool grinding, cutter grinding, and universal grinding machines	40	84	645	1360
Pneumatic portable tools	925	1194	7826	14953
Chucks for machine tools	515	650	7250	18930

Construction and Enterprise

CONCISE, TIMELY BUSINESS BUILDING OPPORTUNITIES IN FIELD OF INDUSTRY

New England

BOSTON, MASS.—D. R. Campbell Machine Co., 55 Mildred avenue, Dorchester, is extending its plant and adding another story. New equipment will be installed to increase production.

CHICOPEE, MASS.—Palmer Steel Co. has completed plans for enlargement of its structural steel plant and will double capacity.

New York

BINGHAMTON — M. & N. Mfg. Corp. has been incorporated with $100,000 capital to manufacture machinery and metal articles, by Mangan & Mangan, Binghamton.

BROOKLYN—Smith & McCrocken have been incorporated with $5000 capital to deal in metals and alloys, by W. L. Wemple, 76 Williams street, New York.

MIDDLETOWN—Huerrick Engineering Works has been incorporated with $100,000 preferred and 2000 shares common stock by C. E. Taylor, Middletown.

NEW YORK—Argus Smelting Co. has been incorporated with $20,000 capital by E. J. Moriarty, 195 Broadway.

NEW YORK—Whitney Metal Products Corp. has been incorporated with $20,000 capital by D. M. Wolff, Jamaica, N. Y.

NEW YORK—Cosmo Casting Co. has been incorporated with $10,000 capital to refine precious metals, by R. J. Moore, 2 Lafayette street, New York.

NEW YORK—Leff & Kershner have been incorporated with $3000 capital to manufacture electrical machinery by Attorneys Albany Service Co., 299 Broadway.

NEW YORK—Typocalculator has been incorporated with 1000 shares common stock to manufacture calculating devices by Brill, Bergenfeld & Brill, 299 Broadway.

NEW YORK—Oil-Burn Evaporizer Corp. of America has been incorporated with 2000 shares common stock to manufacture oil-burning equipment by A. Berman, 475 Fifth avenue.

NEW YORK—Brenner Valve Co. has been incorporated with $10,000 capital to manufacture motor valves by Attorneys' Albany Service Co., 299 Broadway.

NEW YORK—Wilkes Avery Corp. has been incorporated with 350 shares common stock to engineer and build heating and refrigerating plants, by Rabenold & Scribner, 61 Broadway.

NEW YORK—Donovan's Welding Service has been incorporated with $5000 capital to conduct a machine shop and welding service by J. V. Kilroe, 36 West Forty-fourth street.

NUNDA—Adnun Engineering & Mfg. Co. has been incorporated with 200 shares common stock to manufacture tools, by D. S. & D. D. Robinson, Nunda.

New Jersey

NEWARK—Duravalve Inc. has been incorporated with 5000 shares common stock to deal in metal castings and valves by John A. Grammer, Newark.

NEWARK—Maplewood Blade Co. has been incorporated with $100,000 capital to manufacture razor blades, by J. Elmer Haussman, Newark.

NEWARK—Ace Welding Boiler Repair Corp. Inc. has been incorporated with $125,000 capital to manufacture iron and copper products by Rupert F. Howlett, Newark.

Pennsylvania

BEAVER FALLS—Mayer China Co., Second avenue and Fourth street, is having plans made for rebuilding its burned power plant and mold shop and for new units, total cost $200,000.

ERIE—Mechanical Sales Co. has been incorporated with $50,000 capital to manufacture vending machines and appliances, by Raymond V. Havican, 310 West Tenth street, Erie.

ERIE—Erie Welding Co. Inc., 143 East Twelfth street, has been incorporated with $15,000 capital to conduct a general welding and machine business, by James Saurborn, 935 West Twenty-eighth street, Erie.

PHILADELPHIA—Neon Electric Sign Co. has been incorporated with $5000 capital to manufacture signs and other articles of metal, by Paul Green, 4082 East Roosevelt boulevard, Philadelphia.

PHILADELPHIA—Gucker Bros. have been incorporated with 100 shares no par value to manufacture electrical equipment, including switchboards, junction boxes and panel boards, by Thomas Gucker Jr., 57 Summit avenue, Philadelphia.

PHILADELPHIA—American Control Co., care Howard A. Lang, 364 West Duval street, recently incorporated, will manufacture automatic control devices and equipment for electrical services, switches and similar equipment, in a local plant. (Noted Sept. 3.)

PHILADELPHIA—Bull's Eye Road Marker Corp. has been incorporated with 75,000 shares common stock to manufacture traffic signs and road markers, with a Delaware charter, by Corporation Guarantee & Trust Co., Wilmington, Del.

PITTSBURGH — Capitol Renewable Fuse Co. has been incorporated with $25,000 capital to manufacture electrical devices and equipment, by Harry I. Neaman, Pittsburgh.

ROCHESTER — Micro-Meter Corp. has been incorporated with $50,000 capital to manufacture fluid measuring devices and gasoline and oil-handling equipment, by John A. Elliott, Beaver Falls, Pa.

Ohio

EAST LIVERPOOL—The Patterson Foundry & Machine Co. is taking bids on a steam-operated electric generating plant to cost $75,000 with equipment. Albert D. Birch is manager.

MANSFIELD—Martin Steel Products Co. has started work preparatory to rebuilding its plant, recently practically destroyed by fire. J. D. Overholt is president.

SPRINGFIELD — Springfield Screw Products Inc. has been incorporated with $25,000 capital by H. A. Brenner, M. & M. building, Springfield, O., and associates.

Michigan

CASSOPOLIS—An election will be held soon on $50,000 in bonds for a municipal electric light and power distribution system.

DETROIT—American Blower Co. is planning a plant and office building at Tireman street and the Detroit Terminal railroad.

DETROIT—Detroit Edison Co. is having plans made for an addition to its steam electric plant at Lycaste avenue, to cost $525,000, and an electric research laboratory to cost $75,000.

DETROIT—Universal Auto Radio Co., Book Tower Garage, State and Park streets, has been incorporated with $5000 capital to manufacture automobile radios by Samuel B. Collier, 18280 Indiana street, Detroit.

SULLIVAN—Bonds for $80,000 will be voted on soon for a municipal electric light and power plant for which plans are being drawn.

Indiana

EVANSVILLE—Hardin Aircraft Corp. has been incorporated with 5000 shares no par value and plans erection of a plant here to build a small type of aircraft. Richard Hardin, American Trust building, is a director of the company.

GARY—Board of education plans a vocational school, three stories and basement, 187 x 295 feet, to cost $1,000,000

with equipment. William B. Ittner, St. Louis, is architect.

HOWELL—Security Oil Refining Co., recently organized here, plans to install power equipment in a new oil refining plant to cost $60,000. W. W. Fisher is general manager.

INDIANAPOLIS—Eel River Power Co., Continental Bank building, is having plans made for a hydro-electric power plant on Eel river with capacity of 24,000 horsepower.

INDIANAPOLIS—Yaxley Mfg. Co. Inc. has been incorporated with capital of 2750 shares at $100 each and 5000 shares no par value to manufacture electrical and other mechanical appliances and machinery, by Philip R. Mallory, Arnold O. Braum and William P. Jeffery.

SHELBYVILLE — Hercules Metals Inc. has been incorporated with 250 shares preferred stock at $100 each and 5000 shares common stock with no par value to manufacture and deal in metal products, by Henry L. DePrez, William Matern and associates.

Illinois

CHICAGO—Northern Pacific railroad, St. Paul, Minn., plans reconstruction of its burned shops here, with loss of $30,000. H. Blum, St. Paul, is chief engineer.

CHICAGO—Acme Iron & Metal Co. has been incorporated with $10,000 capital to deal in iron, metals and similar commodities, by David Rosenberg and associates. Isadore Kaplan, 11 South La Salle street, is correspondent.

CHICAGO—Douthitt Corp., recently incorporated, advises through F. H. Douthitt, president, that it is organized to build creameries, milk powder plants and dehydrating plants and is in the market from time to time for steel for various purposes. (Noted Oct. 12.)

CHICAGO—Uno Coin Machine Inc., 30 West Washington street, has been incorporated with 102 shares no par value to manufacture coin vending machines, by Alexander H. Kraus and associates. Samuel W. Banovits, 111 West Washington street, is correspondent.

CICERO—Caine Steel Co., 1811 South Fifty-fifth avenue, has been incorporated with $100,000 capital to deal in steel, iron and scrap, by Philip S. Rosenthal and associates. George Gordon, 11 South LaSalle street, room 938, Chicago, is correspondent.

HOOPESTON — Sprague-Sells Corp., 308 West Washington street, Chicago, manufacturer of refrigerating and canning machinery, plans an addition to its plant here, to cost $150,000.

Southern States

WILMINGTON, DEL.—Stillwell Steel Windows Inc. has been incorporated with 2000 shares common stock to manufacture window and door frames, by Corporation Trust Co., Wilmington.

WILMINGTON, DEL.—Bond Mfg. Co., Fifth and Monroe streets, has had plans made for a 2-story addition to its plant, 60 x 300 feet, for the manufacture of bottle caps, collapsible tubing and other metal products. Cost will be $60,000. Brown & Whiteside Inc., DuPont building, are architects.

WASHINGTON—Plans for a central heating plant to serve 26 government buildings have been completed. Location is C, D, Twelfth and Thirteenth streets S. W., with conveyor system from railroad to plant or to storage yards, reclaiming system from yard to plant. Bids will be asked soon by treasury department for first installation of four boilers, inclined straight tube type, underfeed stokers, to furnish 215,000 pounds steam per hour. Design and supervisioin by United Engineers & Constructors Inc., 112 North Broad street, Philadelphia.

SAVANNAH, GA. — Savannah Foundry & Machine Co., W. L. Mingeldorf, manager, is installing new molding equipment.

SHREVEPORT, LA.—May Trailers Inc., H. B. May president, manufacturer of all-steel and combination trailers for industrial and oil field use, plans a new plant at Shreveport and two additional units at the plant at Morgan City, La.

HAGERSTOWN, MD.—Pangborn Corp., Crestview avenue, has deferred action on proposed new plant for a month. Bids have been taken and are under consideration.

Missouri

ST. LOUIS—McDonald Machinery Co. has been incorporated with $50,000 capital by Robert P. McDonald, 4068 Conn street.

ST. LOUIS—Popcorn Brokerage & Mfg. Co. has moved its plant to 4601 Delmar boulevard and will install additional machinery for the manufacture of popcorn machines and equipment. E. I. Lewis is president.

Oklahoma

CUSHING—Empire Steel Corp., John A. Logan manager, owner of a cold rolling mill here, advises his company will not build a culvert manufacturing plant at Sapulpa, Okla., as reported, but that another location is being considered. Machinery from present plants will be utilized but an electric welder will be purchased. (Noted Aug. 20.)

FORT SILL—Air Corps hangar, for which bids were opened Oct. 30 will be 120 x 280 feet and will include a boiler house annex. (Noted Oct. 19.)

TULSA—Sanitary Can Mfg. Co. has been incorporated by J. W. Hays, 1239 East Twenty-ninth street.

TULSA——Electric Machinery Co. has been organized by D. R. Jarrett and Roy Harp to operate an electrical repair shop at 314 East Second street. A lathe and drill press will be purchased.

TULSA—Real Art Permanent Wave Machine Co., Jack Anderson manager, is inquiring for additional machine equipment, including a punch press and lathes.

Texas

CRYSTAL CITY——Bonds for $128,000 have been voted for construction of a municipal electric light and power plant.

DEL RIO—Del Rio & Northern railroad has been incorporated with $150,000 capital to build a line from Del Rio to Sonora and Quemado, Texas, 132 miles. C. V. Millican, Del Rio, is a director.

FORT WORTH—Forth Worth Electric Plating Co. has been organized and has leased a shop building at 608 South Main street.

FORT WORTH—Rex Mfg. Co., John R. Griffin president, has been formed to manufacture a portable heater. Offices have been established in the Majestic building.

LONGVIEW—East Texas Refining Co. has let a contract to the Chicago Bridge & Iron Works, East Chicago, Ind., for construction of two hortonsphere steel tanks of 80,000 barrels capacity each at its refinery here.

LONGVIEW — Bridgeport Machine Co., Wichita, Kans., manufacturer of oilfield drilling equipment, is building a warehouse and repair shop at Camps, Tex., to distribute and service oilfield equipment. Fred Parks, Longview, is manager.

TEXAS CIY—American Petroleum & Transport Co., New York, subsidiary of the Standard Oil Co. of Indiana, Chicago, is having plans made for a refinery here to cost $700,000.

Wisconsin

BALDWIN—Western Cable & Electric Co., G. Hansen, manager, plans construction of a plant to cost $40,000. Architect has not been elected.

MILWAUKEE—Plant of Star Cast Aluminum Co., 3778 North Fratney street, was damaged $10,000 by fire and repairs will be made at once.

MILWAUKEE—Mechanical Engineering Co. has been incorporated with 250 shares common stock of no par value to manufacture machinery, tools, dies and other products. Plant is being established at North Fratney street and East Vienna avenue. William Drahonovsky is president and chief engineer.

SHEBOYGAN—W. C. Weeks, architect, is taking bids for a 2-story extension of its plant and enlargement of its boiler room for the Hayssen Mfg. Co., manufacturer of bread-wrapping ma-

BLISS

ROLLING MILL EQUIPMENT
FOR
HOT OR COLD ROLLING

MILLS

MILL REELS

COILERS

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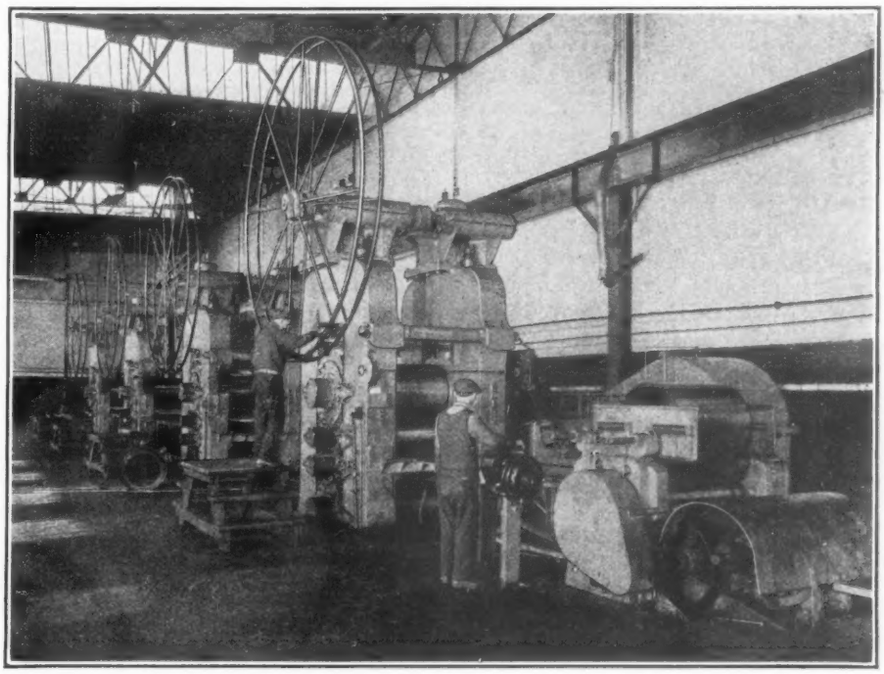

BLISS FOUR-HIGH MILLS
ROLLER-BEARING EQUIPPED

These mills are built in all sizes and roller-bearing equipped throughout.

Full details on request.

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No. 574

chinery and other commercial bakery equipment.

South Dakota

KINCAID — Montana-Dakota Power Co. is building a power plant here. The project was halted in May. C. M. Garland & Co., consulting engineers, 38 South Dearborn street, Chicago, are receiving bids. The cost, with equipment, is estimated at $150,000.

Nevada

BOULDER CITY — Six Companies Inc., 405 Montgomery street, San Francisco, contractor for the Hoover dam project, plans electric installation in its gravel plant, to cost $250,000. Ellison & Russell, Pacific building, San Francisco, are engineers.

Pacific Coast

KETTELMAN HILLS, CALIF. — Texas Co., 929 South Broadway, Los Angeles, plans power equipment for rebuilding an oil absorption plant at Kettelman Hills, recently burned, with loss of $300,000.

LOS ANGELES—Metropolitan Water District of Southern California is having plans made for transmission lines, power substations, electrically-operated pumping plants and other electric power equipment for the Colorado river aqueduct plant for which $220,000,000 bonds have been voted. (Noted Oct. 19.)

MARTINEZ, CALIF.—Armstrong Cork Co., Lancaster, Pa., is having plans made for installing electric power equipment in a plant to be built on a site at Martinez at a total cost of $500,000.

NORTH SACRAMENTO, CALIF.—Plans are under way for a municipal waterworks system, with pumps, to cost $60,000. C. Knight is engineer.

BEAVERTON, OREG.—Voters have approved bond issue of $15,000 for pumping plant and waterworks improvements. Barr & Cunningham, Portland, Oreg., are consultant engineers, drawing plans.

KLAMATH FALLS, OREG.—California-Oregon Power Co. has bought 1200 acres on Klamath river in connection with the Grant power site. When permission is granted the power plant will involve expenditure of $29,000,000.

BELLINGHAM, WASH. — Whatcom Petroleum Co. is having plans made for oil terminal and storage plant on port commission property, to cost $15,000.

SEATTLE—Municipal power department, J. D. Rees superintendent, plans a hydro-electric power plant on the Skagit river to cost $5,000,000, including steel towers, transmission lines, switching substations and auxiliaries.

Dominion of Canada

POWELL RIVER, B. C.—H. J. Slade, secretary, Westview Light, Power & Waterworks district, advises the by-law to authorize a waterworks system failed of passage at the recent election and the project is postponed for the present. (Noted Oct. 1.)

VICTORIA, B. C.—Bids will be asked soon for steel pipe for water mains, by F. M. Preston, city engineer.

TORONTO, ONT.—Pittsburgh Reflector Co. is organizing a Canadian branch under the name of Wilson Illumination Co. Ltd. which will shortly begin production in Toronto.

TORONTO, ONT.——Eustace Bird, architect for the Merchandise Mart building, 21 stories, three basements, steel and concrete, 41,812 square feet, expects operations to be started in the spring. John A. Smith, Imperial Bank building, is manager of Merchandise Mart Ltd.

MOOSE JAW, SASK.——Sterling Oil & Refinery Co. will build an oil refinery at Bridge street and Fifth avenue to cost $200,000, including office, furnace and boiler building, process building and warehouse.

New Trade Publications

PRESSES — Coining or forming steel parts to final size by pressure in its presses is described in a leaflet by the National Machinery Co., Tiffin, O.

PIPE TOOLS—Borden Co., Warren, O., has issued a condensed catalog, No. 32. It is designed to give essential information on the company's line of pipe tools, with illustrations and data tables.

INDUSTRIAL RAILWAYS—American Car & Foundry Co., 30 Church street, New York, in Bulletin **102,** which supersedes Bulletin 101, covers its line of industrial cars, illustrated and with data on cars and track.

FLEXIBLE COUPLINGS — Clark Coupling Co., 149 Church street, New York, in a current bulletin gives details and engineering data on its new type of flexible couplings for various industrial applications.

WATER PUMPS — Aluminum Industries Inc., Cincinnati, has issued a new catalog of its water pumps, covering complete progressive sizes, putting the water pump line on the same basis as other replacement parts.

BUSINESS REPORTS—To explain the value of its business reports Ford, Bacon & Davis Inc., 39 Broadway, New York, has prepared a bulletin describing the ground covered, the facilities the company has for this work and its value to industries in keeping fully informed of their position in the field. Suggestive illustrations show typical cases where business reports are of value.

TURBO-BLOWERS — Allis-Chalmers Mfg. Co., Milwaukee, in a current bulletin, No. 1907, describes its line of turbo-blowers and turbo-compressors, recently purchased from the American Brown-Boveri Co. Application of this equipment to various purposes in industry is suggested.

WELDING—Plate 28 of its studies in structural arc welding has been distributed by the Lincoln Electric Co., Cleveland, and is devoted to arc-welded mill buildings. It illustrates details of various forms of built-up bar frames.

FLOOR PLATES—Inland Steel Co., Chicago, has published a folder on its new 4-way floor plate, claimed to be non-skid in all directions, the pattern matching in each of the four. The plates may be laid in any relation. Other advantages of the plates are illustrated.

MOTORS AND GENERATORS—General Electric Co., Schenectady, N. Y., has issued several bulletins on motors and generators, including the following: Medium-speed alternating-current generators for belt drive or direct connection; single phase vertical motors; general-purpose synchronous motors; constant-speed, single-purpose motors.

PUMPS—American Manganese Steel Co., Chicago Heights, Ill., has issued a four-page section for its catalog, covering its type C materials handling pumps, illustrated and containing data sheets for direct-connected and belt-driven pumps.

BORING MACHINES—A pamphlet on performance data of Swiss precision boring machines has been issued by R. Y. Ferner Co., Washington, agent in the United States for Societe Genevoise d'Instruments de Physique, Geneva, Switzerland. It gives illustrations of jigs, fixtures, dies, molds and special parts that have been drilled or bored on various jig-boring machines, showing in many cases the layout of the holes, their sizes and data as to the time required.

STEEL PILING—Carnegie Steel Co., Pittsburgh, has issued the first edition of a looseleaf bulletin on steel sheet piling, covering its straight and arch web types, which are described in detail. Tables are given and data furnished bearing directly on sheet piling, earth and water pressures to aid in determining loads the piling must withstand. Some of the tables have been computed for this book and others from similar information in standard manuals.